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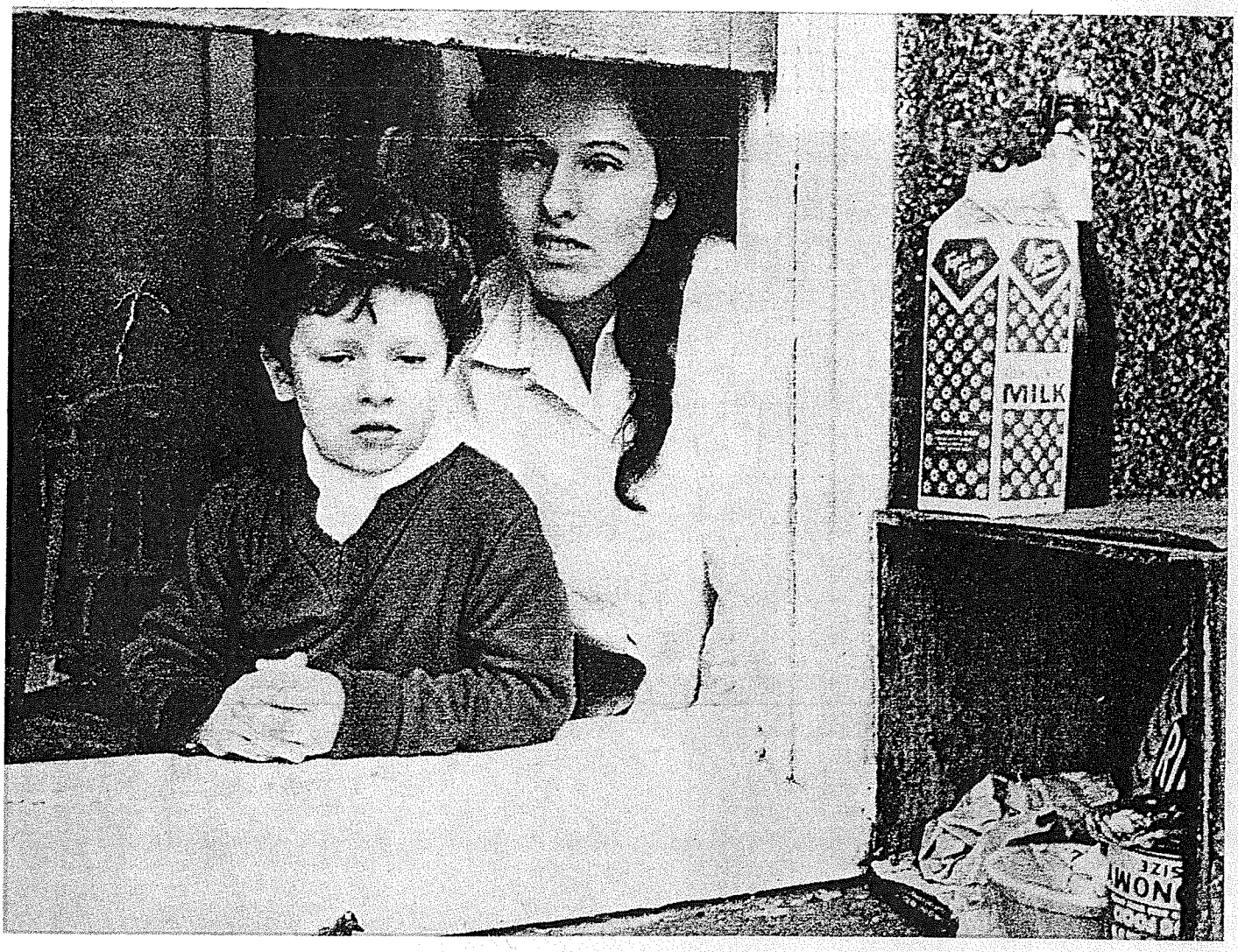

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Editor's Note

Greg Mason,
Editor,
Western Economic Review.

This marks the third year that the Western Economic Review has been published. Slowly, and certainly not without some pain (postal rates!), the Review has evolved from a relatively informal "house" bulletin to a refereed journal, offering, we hope, timely yet rigorous analysis of current economic issues.

The objectives of the Western Economic Review are to provide a forum for informed policy comment, with some stress on western Canadian perspectives. In this issue, we are expanding the focus to incorporate material on social welfare policies. These comprise a major portion of government expenditures, and certainly have important micro and macroeconomic impacts. In addition, the regular appearance of the "Analysts' Notebook" is designed to allow practitioners to gain thumbnail sketches of recent developments in methods. In this way we hope to provide you, the reader, with insight into modern economic analysis.

Another objective of the journal is to publish material by all social scientists who can provide new perspectives on social and economic policy. To this end, we are especially endeavouring to publish material from researchers in the public and private sector. Frequently, much excellent work is unnoticed, an omission we hope to correct in the next several years.

1
In Defence of Industrial Policy*

Professor L. R. Klein,
Department of Economics,
University of Pennsylvania.

2.1 INTRODUCTION

What do we mean by industrial policy? Is it a good thing or not? Does it hold out some hope for the world economy? First, let me give a rationale for industrial policy, or why I, at least, think it has recently come to the fore.

A year ago, when the International Monetary Fund was meeting in Canada, it was thought that there was a true crisis in the making. Now, it appears there is a recovery taking place. This recovery remains only partial; it is perhaps the main reason for the current interest in industrial policy.

The importance of industrial policy is highlighted by the fact that almost all of the leading contenders for Democratic Party nomination in the United States are putting out position papers on this topic. One bright young American economist has said industrial policy will be to the Democratic Party in the United States what supply-side economics was to the Reagan administration. Indeed, even the President has just appointed a White House Commission to look into industrial policy. There have also been a number of conferences throughout the United States, often among academic economists, where, on the whole, industrial policy is getting a very cool reception. I happen to disagree with this dominant position.

Some of my most distinguished colleagues believe that the problems of the major industrial countries and the problems of the world now are essentially macroeconomic. They argue that if we could only get our overall fiscal and monetary policies right, and perhaps our trade commercial policies, then nothing would be as good a tonic to the industrial and the whole world economy as a sustained recovery.

However, macroeconomics can go only so far. It is certainly a necessary part of the policy mix and part of the recovery strategy, but it is by no means sufficient. The problems remaining are "structural" and these will be met only with specific, targetted policies, and not with overall macro policy.

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2.2 INDUSTRIAL POLICY DEFINED

There are many kinds of structural policies that might be relevant to deal with economic stagnation. For example, if we have a problem throughout the world of youth unemployment (as we do), an imbalance in the age structure of the unemployed, it may be a structural policy, such as some special youth training facility, youth labour services, or subsidy programs for on-the-job training, that may be useful. These are not macro policies, but are rather precise and specific. They also may be part of an industrial policy, but are not necessarily the key part. The real question is, what do we mean by an industrial policy?

Professor A. Ando puts the problem nicely in terms of modern economic analysis. For him, the problem is that the natural rate of unemployment, which is a hot topic these days, is very high. We can get down to the natural rate using macro policy, but that still leaves us in a rather unsatisfactory state of affairs with 7 or 8 percent unemployment. If we are to reduce the unemployment rate back toward what we used to believe is the "natural" level, 4 percent or thereabouts, then we will have to turn to some kind of basic structural policy. That is how one might look at the objective of industrial policy - namely, to bring down the natural rate of unemployment.

Another somewhat more popular explanation of industrial policy is to say that we are in a transitional state in the world economy and are moving, to use the lingo, from" smoke-stack" to "sunrise" industries (new technologies). This is a complicated transitional state for the world and industrial policy is needed to bring the world economy through this phase.

Toward the end of the previous administration in the United States, industrial policy started to become popular. Many of you might have seen an issue of Business Week magazine - I think it was in the summer of 1980 - called "The Reindustrialization of America." That followed a conference of the preceding spring at Harvard University, with the question: "Can the United States Remain Competitive?" At that time, there began a body of opinion that America has fallen behind, that we have become not very productive, and that there has been a decline in productivity growth. Both the Business Week survey and the conference at Harvard pointed to the possibility that something could be done to revive competitiveness of industry and to promote this transition state from "smoke-stack" to "sunrise" industries.

Industrial policy means creating new lines of policy action that are very specific. They are industry, product, and market oriented, which makes industrial policies distinct from macroeconomic policies. In macroeconomics, we change an overall tax rate and do not interfere with the market process. Alternatively, we might change a discount rate by the intervention of monetary authorities in the bond markets, which affects the overall interest rate by extension of the term structure and then the price level and other variables. Industrial policy is just the opposite. It attempts to intervene directly.

2.3 INDUSTRIAL POLICY: APPRAISAL

Industrial policy, like other popular economic policies (for example, incomes policy), immediately is subject to the query, "Has it ever worked?" People who do not like incomes policy, for example, say it has never worked so why try it? They say the same thing about industrial policy. Can you produce examples where industrial policy has worked? I claim that there are two pretty good examples. First, there is Japan in the 1960s, which we would call the income-doubling decade, and I interpret this as a successful implementation of industrial policy. Second, there is France under Jean Monnet, implementing what is called "le Plan."

Detractors maintain that industrial policy is going to boil down not just to picking the winners, but also to backing the losers. The cases they cite are the United Kingdom in the '70s, where everything seemed to fall apart in that period of low productivity and poor performance for the economy, despite what seemed to be an active industrial policy promoted by the National Industrial Development Corporation. Then there is Sweden, which would be characterized as a country of great enlightened social advancement, but which has suddenly found itself in great economic trouble; all the great advancements have become set-backs. One example is that Sweden invested in the inventories of companies who had cyclical troubles in order to keep up employment. They quickly found themselves holding goods that did not have markets. Swedish economists say that industrial policy backed losers, and just resulted in a lot of inventories which could not be sold. This cost the public dearly and sent the economy into trouble. So, the opponents tend to emphasize the perverse side, while I tend to emphasize the Japanese and French experience.

Many studies available in the United States argue that Japan did not really have an industrial policy, or that it was not really so successful. What this research fails to appreciate is the long cultural build-up to a society of co-operation between government and business that worked, and worked successfully, for the great surge of Japan in the 1960s. Remember, according to the World Bank and other multilateral organizations, Japan was considered a developing nation until about 1963. They would not have been able to become one of the leading industrial nations of the world in such a short time without an industrial policy. Detractors point to the steel and ship-building industries, now classified among the sunset industries, as mistakes where Japanese industrial policy failed. They do not recall what was going on in Japanese plants in the late '50s and early '60s, and they certainly do not recall the transformation from dependence on foreign technology to a situation of leadership in new technologies. Many skeptics apparently did not ride in Japanese cars when they over-heated on expressways, when they broke down, or when they did not start in winter time, and they do not acknowledge the really concerted effort to make a car that would sell around the world. They fail to appreciate the revolving door between industry, business, and government that produced this remarkable growth.

I am impressed by a book on Japanese industrial policy by Shinohara (1982), who was very active in the 1960s, and in which numerous details are cited of how MITI and other planning organizations within the Japanese government worked with the industrial sector to pick out the lines that would be followed. I am

also struck with an intriguing book by Morishima, now at the London School of Economics, called "Why Has Japan Succeeded?" in which he tries to trace through the cultural development of Japan, to a large extent based on Confucian ideals, and other philosophies which made Japan ripe for worker participation in the company's interest, and in the state's interest. That is all part of what I view as industrial policy.

Japanese and French economists say that it was really easy in the 1960s. Almost anything they picked turned to gold. Now, they are trying to repeat this, and they are more uncertain. They have less confidence that their choices are going to be real winners. But in the last couple of weeks, I visited the high technology frontier of Japan, which is a new city and new university north of Tokyo, called Tsukuba. There is a tremendous effort, built up in just about ten years, to have a line of influence between industry, government, and the academic community to perfect robots, microtechnologies, protect the environment, and to use energy efficiently. In France, I was very struck by their choice of electronics, another new line of technology, as the way to go. Here we have two examples of countries that were successful in the past and are now pursuing an industrial policy to give them good growth in the future. It is probably true that every country cannot sell to everybody else and it is probably true that if every country looks at the same industry and follows the same kind of industrial policy, they will not all be successful. Nevertheless, I think that the countries who do not adopt an industrial policy may be left by the way-side.

2.4 INDUSTRIAL POLICY AND ITS DIRECTION

Some industrial policies have overall characteristics - they are not macroeconomic necessarily, but they are not industry-specific - and have features which I feel everyone would support. For example, Professor Jim Ball argues that industrial policy is not like a day at the races picking the winners, but it is improving the breed, and trying to get the best thoroughbred. Primarily, that means channelling support into R and D, into basic scientific research, and into the academic community. It is a matter of priorities, but one of the primary inputs of an industrial policy must be to support the research establishment. Looking at the United States, it is quite evident that for the past decade we have declined, in inflation-corrected terms, in support of R and D. In some way, this is responsible for the productivity lag and for the thinking that we are not going to be able to compete effectively. R and D expenditures are presently very high, but this is primarily for the military. This has always had some spin-off in the past, but now it may be relatively ineffective to get an indirect result from military R and D into the civilian sector.

Second, consider training and retraining. The typical case is to have the unemployed steel-worker take a course in computer programming and learn to adapt to the new technology. This is happening throughout the country now. People are going to computer schools, buying personal computers, becoming schooled in the ways of operation, and it is not only very young people but people in the 40-year-old, 50-year-old age group who are able to make the transition to working with terminals and computers, and

learning some of the new technologies. There is very little argument that retraining is a good thing.

Another line of activity that looks promising is trade liberalization. In the current recession, we are getting just the opposite. This protectionism may extend to the new technologies, when what we need for advancement of "hi-tech" is a high and vigorous level of world trading activity.

In the United States, we are trying to take a lesson from the Japanese, by trying to buy some of the technology in steel production. Of course, General Motors is also trying to go into a joint production with Toyota; we have many other combinations like this. Another Japanese idea that is being pursued is the use of the trading company. If we say that we are non-competitive - non-competitive for a variety of cost and productivity reasons - one solution is a trading company which explores opportunities in the world market, overseas tastes, overseas sizes, overseas needs in industry and undertakes foreign sourcing. For this to work, trade liberalization is needed. While it is too early to judge, the first trading companies that have been established to challenge Mitshubishi and Sumitomo and other giant Japanese traders, are companies that are sponsored by General Electric, Sears-Roebuck, and J.C. Penny, and general impressions are on the whole, favourable.

Yet another line of activity which is distinctly American is encouragement of capital by reduction in capital gains taxes. There have been two major reductions, in 1978 and in 1981, simultaneous with an increase in activity on the minor stock exchanges for issues for small companies. We are also witnessing the growth of mutual funds that explore little unknown companies and supplying equity capital. This is promising and I think the reduction of capital gains taxes has helped.

I could enumerate many policies of training, research and development, venture capital and trading companies. Economists, in general, are willing to accept them along with an accommodating monetary and fiscal policy, but they draw back when we try to pick the winners, or try to identify the outstanding industries. One of the problems is that everyone is picking the same industries, such as micro-electronics. Another common choice is information technology feeding off micro-electronics and communications. The whole field of bio-technology, which is a field of enormous investment with few returns, where everyone seems to assume that recombinant DNA must hold a lot of secrets which can be exploited for the market. Just how do we go about identifying directions for an industrial strategy?

Some projections from the Wharton econometric model are insightful in that industry growth for the next ten years may be tracked. Here is the general outline of the scenario.

1. Manufacturing grew faster than the economy in general in the '60s and now will conform more to the average pattern. This means there will probably be some shift; manufacturing used to be a leading sector, but now the leading sector is more likely to be a service sector.

2. Communications, finance, insurance, and real estate were relatively high growth sectors historically and are expected also to be high growth sectors in the future.

3. Among services, medical services are projected at a

comparatively high growth rate. That is one of the potentially high growth areas, especially in high technology.

Now for some surprises. It would have been unwise to have rated the coal sector's performance on the basis of its relative decline in the '50s. However, we find coal in these projections rebounding at a rate that is far above the industrial average. Also, government, measured by value added, which is the real value of personal services, was not a relatively fast-growing sector in the past, and that is contrary to popular opinion. Our President would like us to believe that the federal public sector grew very fast and dominated our activity in the past, but that is not so. In terms of public sector employment, the growth area was in the State and local government and not in Federal government. For the future, however, government growth is restrained and that is part of the activity of overall policy in holding down public spending.

In the 1960s, lumber for housing, steel, aluminum and electrical machinery and automobiles expanded rapidly. In this group of durables, metal fabricating should recede relatively, while the others hold their own or gain as a whole. In the non-durables manufacturing group, rubber for cars, synthetics for textiles, and chemicals all expanded rapidly during the '60s. They are expected to slow down for the 1980s, but rubber may still hold its own position. Except for coal mining, there should be a drop in growth rates below the average for mining in the future, and agriculture will keep on a fairly slow path. That is partly deliberate policy to hold down farm output in order to keep up prices and incomes. Nevertheless, when we rank industries on a more refined scale, feed grain production to produce meat and protein foods is one of the fast-growing sectors.

In my opinion, the way to pick the winners is to make studies like this. And these are made in the technical sense by large input-output cum macro models of thousands of equations. After that, meetings with technologists are held to look over the array of industries, the fast-growing, the slow-growing, criticize them for feasibility and possibility of reaching the targets that are set. Then go back to the drawing board to recompute and then meet again to produce a rolling projection of a decade forward. Let us now consider more informal approaches using historical data.

What we are looking for are things that would make countries competitive in world markets. And I say there are four factors that we should look at: First, there is productivity - output per worker or worker hour. Second, there are wage rates - that is the biggest single cost item. Together, productivity and wage rate make unit labour costs, the third factor for each country. This is expressed in local currency units. Then, of course, countries have exchange rates, which are sometimes used to cover up more fundamental changes, and so we need to compute unit labour costs in U.S. dollars. Now the fourth factor, which I do not have on these charts, is profit margin, or mark-up in order to get at a measure of the actual price charged. These inter-country comparisons (Table 1), are instructive in that they tell a pretty uniform story. Japan is always at the top - always the most efficient (lowest) in terms of cost or the highest in terms of productivity growth, not level. The United Kingdom is almost always at the bottom; there are others in

between. It is my opinion, since the U.S. (and Canada) are between, neither worst nor best, and the fact that we are all at the starting line on these new technologies, that we have a chance to re-establish industrial growth in North America.

TABLE 1

Gross Domestic Product Per Worker: Selected Industrial Countries (1980)

	U.S. Dollars*
United States	18.0
Canada	18.0
Japan	15.1
Belgium	19.1
France	18.4
Federal Republic of Germany	19.4
Italy	11.0
United Kingdom	10.3
Denmark	17.4
Sweden	18.4
Netherlands	20.6

* Results are expressed in thousands of 1975 U.S. dollars, and 1975 exchange rates were used for currency conversion.

Table 2 gives productivity levels in the big ten countries in 1980. It is interesting to see that while Japan is everybody's competitor, it is not so high in terms of GDP - at least, not for manufacturing in total. But Japan had very rapid growth between 1970 and 1980, and that is what worries everyone. Both Canada and the United States have had very small increments, also a concern.

TABLE 2

Changes in Manufacturing Productivity

	Output Per Hour*	
	1960 - 1973	1973 - 1981
United States	3.0	1.7
Canada	4.5	1.4
Japan	10.7	6.8
Belgium	7.0	6.2
France	6.0	4.6
Federal Republic of Germany	5.5	4.5
Italy	6.9	3.7
United Kingdom	4.3	2.2
Denmark	6.4	4.1
Sweden	6.7	2.2
Netherlands	7.6	5.1

* Results are expressed as percent change.

Next, what I have done is to choose a group of industries; some are new industries and others are "traditional". Combining wage rates from the U.S. Bureau of Labour Statistics with O.E.C.D. indices of industrial production and employment by industries and the published exchange rates first produces output per worker from the O.E.C.D. numbers, which is multiplied by wage rates to produce unit labour cost in local currency. Finally, when this is multiplied by the dollar exchange rate, it yields a dollar unit labour cost. Tables 3 a-f show percentage changes from 1975 to 1980 for a few key industries. Here one can see that Japan is generally the lowest, while Canada is relatively inefficient in local currency, and the United Kingdom is quite inefficient.

TABLE 3a

Productivity, Unit Labour Cost, and Price:
Iron and Steel Industry (1975-1980).

	Productivity	Unit Labour Cost* Local Currency	Unit Labour Cost* U.S. Dollars	Producer Price
Canada	1.9	10.2	7.2	10.1
France	7.8	4.6	4.9	7.6
Federal Republic of Germany	4.9	2.2	8.6	1.4
Japan	8.2	-1.3	4.3	6.3
Sweden	2.1	9.3	8.9	6.9
United Kingdom	-2.2	13.6	19.8	12.9
United States	0.9	10.3	10.3	8.7

* Results are expressed as percent change

TABLE 3b

Productivity, Unit Labour Cost, and Price:
Motor Vehicle Industry (1975-1980).

	Productivity	Unit Labour Cost* Local Currency	Unit Labour Cost* U.S. Dollars	Producer Price
Canada	-2.1	14.3	10.9	9.0
France	3.1	10.7	11.0	-
Federal Republic of Germany	0.1	7.8	14.5	3.7
Japan	10.5	2.2	3.3	0.3
United Kingdom	-1.3	12.7	13.7	15.7
United States	2.3	9.0	9.0	7.6

* Results are expressed as percent change.

TABLE 3c

Productivity, Unit Labour Cost, and Price:
Electrical Machinery and Electronics Industry (1975-1980).

	Productivity	Unit Labour Cost* Local Currency	Unit Labour Cost* U.S. Dollars	Producer Price
Canada	3.3	6.8	3.8	7.2
France	5.5	9.2	9.6	-
Federal Republic of Germany	5.0	3.0	9.5	2.0
Japan	14.1	-6.7	-1.5	0.4
Netherlands	7.8	1.5	6.5	1.6
Sweden	0.6	11.5	11.1	8.3
United Kingdom	1.8	19.9	21.0	13.4
United States	4.0	5.0	5.0	7.5

* Results are expressed as percent change.

TABLE 3d

Productivity, Unit Labour Cost, and Price:
Chemicals Industry (1975-1980).

	Productivity	Unit Labour Cost* Local Currency	Unit Labour Cost* U.S. Dollars	Producer Price
Canada	3.2	6.7	3.8	10.5
France	4.8	10.0	10.3	9.5
Federal Republic of Germany	3.5	3.3	10.4	2.9
Japan	9.7	-1.0	4.6	9.3
Netherlands	6.9	0.8	5.7	-
Sweden	0.7	11.8	11.4	11.8
Switzerland	6.9	-3.0	5.8	-0.6
United Kingdom	2.6	20.5	21.6	16.3
United States	4.4	5.3	5.3	9.4

* Results are expressed as percent change.

TABLE 3e

Productivity, Unit Labour Cost, and Price:
Textile Industry (1975-1980).

	Productivity	Unit Labour Cost* Local Currency	Unit Labour Cost* U.S. Dollars	Producer Price
Canada	3.6	7.0	4.0	9.0
Denmark	3.4	7.3	7.7	6.8
France	3.2	10.6	10.9	3.4
Federal Republic of Germany	3.6	3.7	10.2	2.6
Japan	4.2	4.1	9.9	4.2
Netherlands	7.9	-0.3	4.6	3.9
Sweden	0.3	12.4	11.9	8.6
Switzerland	5.8	-0.8	6.9	0.5
United Kingdom	-0.1	15.7	16.7	12.9
United States	3.0	6.1	6.1	5.9

* Results are expressed as percent change.

TABLE 3f

Productivity, Unit Labour Cost, and Price:
Paper and Allied Products (1975-1980).

	Productivity	Unit Labour Cost* Local Currency	Unit Labour Cost* U.S. Dollars	Producer Price
Canada	3.5	7.1	4.2	9.2
France	6.1	7.7	8.1	5.8
Federal Republic of Germany	5.5	2.6	9.0	2.9
Japan	5.9	0.2	5.8	6.1
Netherlands	5.5	1.7	6.7	-
Sweden	3.0	9.8	9.3	7.1
United Kingdom	2.5	10.7	20.9	13.5
United States	2.6	7.4	7.4	7.9

* Results are expressed as percent change.

This is interesting because the exchange rate is being used by Canada to cover up relative inefficiency; Canada is no longer the worst when the exchange rate is integrated into the analysis. The U.S. is in between, but overall, Japan is still the most impressive, the best in this particular calculation, even after taking account of the exchange rate changes, although there are a few exceptions, primarily in more traditional industries (textiles and paper and allied products).

My point of view is that a country should not rely on the crutch of exchange rate manipulations, because that also feeds back into the price system and causes other troubles. It should use more fundamental techniques for becoming competitive and that means raising productivity, moderating wage claims, or moderating the profit margin.

What do we learn from this type of exercise? This is a kind of study, I think, which should be expanded and carried through systematically, industry by industry, so planners in different countries can pin-point problems and potential. It is also saying that Japan is a formidable competitor and has been an outstanding performer across a spectrum of industries. The United Kingdom, more than taking the adjustment and transition in training and other policies, is taking it in lay-offs and streamlining of industries. So the denominator of the productivity ratio is being knocked way down, and the United Kingdom has a long way to go to get up to competitive status.

United States and Canada are very much in the middle and I regard that as quite a good sign, meaning that we could get on a new track with better productivity and wage moderation. In the Wharton projections for the next few years, we have American wage rates rising at 6 or 7 percent a year, which is a very modest figure. If productivity is showing some signs of reviving, there is a good chance of the U.S. becoming competitive once again. When I look at these figures they show that there is no reason to give up hope, and that industrial policy which really picks out good processes, industries, and training facilities has an excellent chance to improve economic performance.

On the other hand, for much of the developing world, the situation looks rather grim. Generally speaking, this area, which aspires to 5 and 6 percent growth a year, is being projected at around 4 or 5 for the Pacific-Asian area at the top of the scale, but Africa is at the very bottom, with but 1 to 2 percent growth. It turns out that the developing countries which are best situated, those at the high end of the scale, namely the Pacific basin countries, have very impressive investments in the new technologies. These new industries are not so heavily capitalized as the old smoke-stack industries, and are more based on human ingenuity, educational systems and talent, advantages which these areas are using with significant benefit.

In these new technological industries, there is going to be a great deal of foreign sourcing, and there is great opportunity for many countries. We are coming into an era which is starting out on a sour note with the recession. Maybe it will turn better with recovery, but even if there is recovery, the best projections are for a modest, slow kind of recovery and in every forecast there is a risk of error. There is a very big risk in being too low in projections. That is, things may work out much better than we now believe - I think we call this the up-side risk. This is, in my view, more likely than down-side risk at

the present time. The reason for thinking that there may be big upside risk (that is, forecasting too low a potential for the recovery) to these somewhat mediocre projections for the future, are the new technologies. They hold much promise, and because of this, the cool reception given to industrial policy by the academic establishment is not justified. There is much to be learned, much to be copied and much on which to capitalize in the exploitation of new technology. At the present time, the 100th anniversary of the birth of Schumpeter as well as being the 100th anniversary of Keynes, the attention is being given to Keynes - quite justifiably - but Schumpeter was the inventor of the creative entrepreneur and that is what we need under an industrial policy in the exploitation of the new technologies.

* Address delivered at the University of Manitoba, September 30, 1983.

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2

The Impact of Federal Grants to Provincial Governments on Regional Incomes*

Joseph C. Cox,
Department of Economics,
University of Kansas.

James A. Johnson,
Department of Economics,
McMaster University.

3.1 INTRODUCTION

Federal government grants to the provinces are designed to serve several purposes[1], but regardless of their chief objectives, grants are often evaluated in terms of how they affect the incomes and the government programs available to the residents in each province. Analyses of the distribution of grant funds among regions are, however, usually concerned only with the initial allocation of money[2]. They ignore how individual incomes are affected by the provincial government's allocation of grant revenue among expenditure programs and the subsequent rounds of expenditure.

Grant revenue which is spent largely on capital items such as hospital equipment, may have a different effect on incomes than expenditures of the same magnitude on service-oriented programs, such as increasing the number of social workers. The equipment manufacturers may purchase materials from steel and glass manufacturers, who in turn may buy items from iron ore and other natural resource producers. In contrast, the social workers may purchase chiefly food, clothing and services and, hence, the chain of purchases is different.

Not only would the sum of the total chain of expenditures likely be different from these two initial expenditures, but the impact on industrial output and incomes in various regions would also differ. For example, if Manitoba were the province making the expenditure, it may be that the chain created by the hospital equipment purchase would increase employment incomes and the sales of businesses in Quebec much more than the chain created by hiring more social workers.

The chain of purchases created by an initial expenditure may either support or interfere with the intent of the grant allocation. For example, a grant for a specific purpose given to the Atlantic provinces may cause a chain of purchases in which the funds are spent largely on items produced in the Atlantic region. Conversely, the grant funds may be spent chiefly on imports from Ontario and raise incomes there.

Given the potential impact of the chain of expenditure on the effectiveness of grant programs, more attention should be directed to examining the subsequent rounds of expenditure created by an initial purchase. It is the purpose of this

paper to describe a procedure for measuring the total effect of a given grant on the employment incomes in different regions and in various industries. Empirical estimates, obtained from employing this method to measure the effects of three federal grants, are also presented and interpreted.

3.2 DESCRIPTION OF PROCEDURE[3]

The procedure for measuring the impact of federal grants on provincial employment incomes involves two distinct steps, and each step requires an empirical model. The first step is to determine the effect of each federal grant on the behaviour of provincial governments, with special emphasis on the change in provincial expenditure. The second step is to measure the total impact of the change in provincial expenditure on provincial employment incomes.

3.2.1 Impact of Federal Grants on Provincial Expenditures

When a provincial government receives a grant, it may behave in several different ways. For example, a federal conditional matching health grant would reduce the price of health related items to the province, and the provincial government could react by increasing its expenditure on health from its own revenue sources. The funds for this increased expenditure on health could be diverted from other programs, additional revenue could be secured by raising taxes, or the size of the government deficit could increase. The province may, however, react to the grant by decreasing the amount of its own funds that it devotes to health related items. Unconditional grants or conditional grants which do not require any matching of funds by the province are almost certain to result in increased expenditure on all government programs and lower taxes/ deficit, but the relative effects of each grant may differ.

Canadian studies of the determinants of provincial expenditures have found that the level of federal grants is an important determinant of provincial revenues and expenditures on various programs[4], and we drew upon these earlier studies in constructing our econometric model. Due to limitations caused by data availability for the second part of our study, we estimated the response of four Canadian regions (Ontario, Quebec, Atlantic provinces and Manitoba) to three federal grants (health, social welfare and equalization). In our estimation of the determinants of per capita provincial expenditure over the 1947-65 period, we used income, unconditional grants, conditional grants for each of the expenditure programs, wage rates (to measure cost or price), time (to measure performance change) and other social economic factors as explanatory variables. The results indicated that conditional grants for health and social welfare would cause expenditures from the province's own sources on these programs to increase (except for social welfare expenditures in Quebec), and in most cases, that total provincial expenditures would also rise (especially in Manitoba). The empirical results also showed that unconditional grants would cause provincial expenditure to rise but by a smaller amount than the grant. For example, expenditure would increase by $.35 for each $1.00 of an unconditional grant in Quebec and by $.85 for each $1.00 grant in the Atlantic provinces.

3.2.2 Impact of Provincial Expenditure Change on Provincial Employment Incomes

Once the impact of various types of federal grants on each provincial expenditure function has been determined, the effect of the provincial expenditure changes on provincial employment incomes must be computed. The allocation of existing provincial expenditures among purchases from different industries can be determined[5] and it is assumed that additional expenditures would be spent in the same manner. If, for example, the present budget for health expenditures in Ontario is allocated such that 10 percent is spent on agricultural goods, 15 percent on mineral goods, 30 percent on chemicals, 20 percent on metal products and 25 percent on labour, it is assumed that any increase in the budget would be spent in the same manner. The industries which produce these added goods would allocate their sales dollars among purchases from other firms and payments to economic factors (primarily wages and salaries). These suppliers would, in turn, make purchases from other industries. In addition, individuals who receive factor payments make purchases at each round of expenditure.

The instrument used to calculate the total value of this chain is an input-output model, which shows how each industry allocates a dollar of sales among purchases from each industry and payments to economic factors. By employing the input-output model, the increase in total income and increase in output in each industry resulting from the increase in sales of one industry can be calculated[6]. For example, the effect of increasing the output of agricultural products by $1 million on the output of the steel industry can be estimated. Most input-output models are constructed for one economy, such as for Canada or Ontario, but the model used in our analysis is an interregional model which links four Canadian regional economies (Ontario, Quebec, Atlantic provinces, and Manitoba[7]) and the United States. Thus, we are able to describe how an increase in a particular expenditure program in one region would affect the employment income in each industry and in total for each of our five regional economies[8].

3.3 DESCRIPTION AND INTERPRETATION OF EMPIRICAL RESULTS

While there are several interesting comparisons which could be drawn from our analysis, we believe that the potential uses of the procedure we propose can be demonstrated by two examples.

3.3.1 Impact of Federal Grants on Regional Employment Incomes

In this section we examine the increase in employment income in each region due to three major grants[9]. Spillovers from one region to another are important and arise because governments, businesses and consumers in one region purchase goods produced by industries located in another province, thereby increasing incomes in the latter province. Regions differ greatly in population size and, rather than assuming that the total grant is equal for each province, we assume an equal per capita grant. We believe that the assumption of equal per capita grants provides a more meaningful comparison and approximates more closely the actual grant distribution in Canada. Our empirical results are demonstrated in Table 1.

TABLE 1

Per Capita Employment Income Effects by Region of a Ten Dollar Per Capita Increase in Grants, 1965

Spillover to	Recipient of Grant				Aggregate Income
	Atlantic	Quebec	Ontario	Manitoba	
		Equalization			
Atlantic	6.85	0.38	*	0.02	7.25
Quebec	0.21	6.03	*	0.05	6.24
Ontario	0.23	0.89	*	0.11	1.23
Manitoba	0.12	0.55	*	5.83	6.50
United States	0.08	0.31	*	0.04	0.43
		Health			
Atlantic	22.50	2.54	0.46	0.09	25.64
Quebec	0.50	16.15	1.83	0.23	18.71
Ontario	0.51	2.61	22.70	0.44	26.26
Manitoba	0.34	1.73	2.46	26.57	31.10
United States	0.18	0.91	0.61	0.61	1.86
		Social Welfare			
Atlantic	26.57	1.01	0.31	0.08	27.97
Quebec	0.48	7.06	1.12	0.23	8.89
Ontario	0.47	0.83	10.69	0.45	12.44
Manitoba	0.35	0.64	1.05	26.32	28.36
United States	0.16	0.25	0.31	0.16	0.88

* Ontario did not receive an equalization grant in 1965.

Source: Joseph Cox, "The Interregional Impact of Federal Grants to Provincial Governments," unpublished Ph.D. Thesis, McMaster University, 1979, Chapter 7.

The columns in the table indicate the province which receives the grant and the rows indicate the region in which the employment income is increased. For example, the first column of the table shows the increase in per capita employment income for each region which is created by a $10 per capita increase in equalization, health and social welfare grants to the Atlantic provinces. In the last column, the increases in employment income resulting from an additional grant to all recipient provinces is shown.

Increases in employment income are larger for the health and social welfare conditional grants than for the unconditional equalization grant because the employment multipliers are larger for the conditional grants[10]. This relationship is valid for spillovers, as well as for the employment income of the

recipient provinces. In comparing the two conditional grants, the spillovers for the health grants exceed the spillovers from social welfare grants.

The largest per capita spillover is received in Ontario and is created by an increase in the health grant to Quebec ($2.61). In general, Ontario receives the largest per capita spillovers from each of the grants because the other provinces spend a large fraction of their grant funds on goods produced in Ontario. Quebec ranks second as a recipient of spillovers and the other Canadian regions receive per capita spillovers which are between the values for Quebec and the United States. The largest spillovers to the United States are created by grants to Quebec and the lowest spillovers result from grants to Manitoba.

These results demonstrate that grants to a particular province generate substantial spillovers to other regions in the form of increased employment incomes. A $10 per capita health grant to Quebec, for example, creates a per capita increase in employment income in both Ontario and the Atlantic provinces of more than $2.50. The results also show that the major recipients of spillovers are the industrial provinces, and that both total spillovers and the spillovers to the United States vary by the type of grant and the recipient of the grant.

3.3.2 Impact of Federal Grants on Various Industries in Different Regions

The effect on a particular industry in a region may be an important variable in determining grant policy. For example, the federal government may be interested in providing a stimulus to the agricultural-fishing-forestry industry in the Atlantic provinces as well as giving aid to provincial governments. A grant scheme could be designed which would accomplish the primary objectives of the federal grant programs while simultaneously providing maximum aid to this industry grouping. One illustration of how different industries are affected by grants is presented in Table 2.

The columns in Table 2 show the increase in employment income by industry (expressed in per capita terms) created by $10 per capita federal grants in Quebec. The first column, for example, indicates the increase in employment incomes for the sixteen industries located in the Atlantic provinces, which are generated by a $10 per capita equalization grant to Quebec. The Quebec values are largest because much of the initial expenditure and subsequent rounds of expenditures due to federal grants in Quebec are spent on purchases from Quebec industries. In general, values for the health grants are larger than for the other grants because the health grants generate a larger increase in total expenditure, and thus in total employment income. The largest spillovers in per capita terms tend to be generated for Ontario.

The largest spillover into another region is for tertiary industries in Ontario, where the increase in employment income is $1.01, from health grants. Spillovers to the tertiary industries in the Atlantic provinces and Manitoba are the largest spillovers for these regions, but increases in employment income for the agricultural industry are also large. The increase in employment income of the mineral industry in Manitoba is also sizeable. Spillovers to the United States are largest for the tertiary and agricultural industries.

TABLE 2

Per Capita Income Effects Generated from Grants to Quebec, by Industry

	Equalization					Health					Social Welfare				
	Atlantic	Que.	Ont.	Man.	U.S.	Atlantic	Que.	Ont.	Man.	U.S.	Atlantic	Que.	Ont.	Man.	U.S.
1. Agric., Forestry, Fish, Fur	.04	.18	.04	.16	.03	.20	.49	.18	.52	.08	.07	.12	.04	13	.02
2. Metalic and Non-Metalic Minerals, Fuels, Coal	.01	.06	.01	.06	.01	.06	.16	.03	.15	.04	.03	.20	.04	.15	.01
3. Food, Tobacco	.03	.20	.04	.03	.02	.13	.67	.19	.09	.05	.04	.16	.04	.02	.01
4. Rubber, Chemicals	*	.05	.04	.03	*	.01	.21	.14	.10	*	*	.11	.05	.04	*
5. Leather, Textiles	.01	.16	.04	.01	.02	.03	.50	.11	.02	.05	.01	.13	.03	.01	.01
6. Wood, Furniture	.01	.07	.02	.01	*	.03	.16	.04	.04	.01	.01	.06	.01	.01	*
7. Pulp, Paper	.01	.13	.08	.01	.01	.04	.24	.15	.02	.02	.01	.04	.03	*	*
8. Printing, Misc. Mfg.	*	.05	.03	.01	.01	.02	.15	.10	.02	.03	.01	.06	.04	.01	.01
9. Primary Metals	.01	.02	.07	.01	.01	.03	.06	.17	.03	.01	.01	.02	.05	.01	*
10. Fabricated Metal Products, Machinery	.01	.10	.07	*	.01	.02	.21	.15	.01	.03	.01	.06	.05	*	.01
11. Transportataion Equipment	.02	.04	.05	*	.01	.08	.11	.13	.01	.02	.03	.03	.03	*	.01
12. Electrical Equipment	*	.02	.02	*	*	.01	.09	.05	*	.01	*	.02	.01	*	*
13. Non-Metalic Mineral Products	*	.10	.02	*	*	.01	.28	.06	.01	.01	.01	.12	.02	*	*
14. Petroleum Products	.01	.06	.01	*	*	.06	1.17	.02	.01	.01	.02	.05	*	*	*
15. Construction	.01	1.28	.03	.03	.01	.06	2.32	.08	.09	.02	.02	.68	.03	.03	.01
16. Tertiary	.21	1.14	.34	.18	.17	1.82	4.12	1.01	.59	.52	.72	.90	.35	.21	.14

* Less than .005.

Source: Joseph Cox, "The Interregional Impact of Federal Grants to Provincial Governments," unpublished Ph.D. Thesis, McMaster University, 1979, Chapter 7.

3.4 SUMMARY AND CONCLUSIONS

We have presented a two-step procedure which facilitates an analysis of the total effects of federal grants on employment incomes and industries. The first step is to estimate the response of the various provincial governments to different types of grants through the use of an econometric model. The second step in the analysis is to take the change in provincial expenditures and examine the chain of expenditures generated by the initial outlay. This two-step procedure allows us to measure effects such as the following:

1. Which grant would create the largest increase in employment income?

2. Which grant (and to which province) would generate the largest spillovers in total and for a particular region?

3. Which grant would give the greatest aid to a specific industry in a particular province (e.g., textiles in Quebec)?

We believe that the procedure we suggest is a useful addition to the traditional methods used to analyze grants. However, the empirical results presented in the paper should be viewed as illustrative rather than definitive. If our suggested procedure is used in designing grant policy, many improvements in our empirical work should be implemented. More recent data and more sophisticated quantitative techniques should be employed in estimating the response of provincial governments to federal grants. More effort should also be devoted to determining the present pattern of provincial expenditure for each province and for each expenditure program. Last, a more reliable interregional input-output table with more industries, and more complete distribution of factor shares, should be developed.

NOTES

*We would like to thank M.L. Kliman and S. Mestelman for their useful comments on an earlier draft of the paper.

[1] The purposes of Canadian Federal Grants are described in several publications. See Auld and Miller, 2nd ed., Part 5, 1980 and Boadway, 1980.

[2] See Economic Council of Canada and Courchene and Copplestone, 1980.

[3] This section is intended to be a brief description of the steps employed in the analysis. For a much more thorough and technical description, the interested reader is directed to Cox, 1979.

[4] Three Canadian studies which measure the impact of federal grants on provincial expenditures and revenues are: H.M. Hardy, 1976; Jean M. Maley, 1972; and Nicholas A Michas, 1969. Our analysis is similar to Maley's work.

[5] The provincial government final demand coefficients were constructed from provincial government expenditure data for the fiscal year 1965 reported in Statistics Canada, 1965 and Kubursi, 1978.

[6] The economic technology and behavioural assumptions underlying the input-output model result in calculations which overstate the actual income and output changes. For example, in the input-output model, outputs are elastic in supply, there is excess capacity, and labour is readily available. For a discussion of the assumptions, see H. Richardson, 1972.

[7] The trade flows in the input-output model are for all of the four western provinces, but the structure of the economy is based on Manitoba. Thus, the composition of the chain of expenditures caused by an initial expenditure is based on Manitoba, but the expansionary effects accrue to all four western provinces.

[8] The interregional input-output table employed in this analysis is a 16 industry model based on the 24 industry Agricultural Economic Research Council of Canada table of four Canadian regional economies and the United States economy for 1967: P.L. Appleton, 1973. The Agricultural Council table of 24 industries was collapsed to 16 industries to maintain consistent industry definitions in the table of interindustry and interprovincial flows and provincial government final demand data. For a more thorough discussion of this point and the data sources used in our analysis see Joseph Cox, op. cit., Chapters 5 and 6.

[9] The three grants considered here were the three largest federal grants in 1965-75 period: health grants, social welfare grants and equalization grants. The first two were largely conditional, in that they had to be spent on a designated program (sometimes very narrowly defined), and the equalization grants could be used to increase expenditure on any program or to reduce taxes/deficits. The conditional grants were largely matching and could cause the re-

cipient government to divert more of its resources to finance these programs if the demand for the program (e.g., health) was price elastic or less of its resources if price was inelastic. The grants in any given year are not completely independent of the level of employment incomes in a region, but given the smallness of the grants relative to the incomes and the structure of the grant formulas, they can be assumed to be exogenous. For example, the level of income in a province affects many of the bases in the equalization formula, but the ratio of equalization grants to gross national product was only .5 percent in 1965-67 period, and the grants are based on provincial taxable capacity two years prior to the grant (e.g., a grant for 1967 was based on taxable capacity in 1965). For a further discussion of the lags in the payment of equalization grants see Douglas H. Clark, 1969, p. 47.

[10] There are several possible reasons why the multipliers differ. First, the initial increase in provincial expenditures due to a federal grant differs by province and grant. For example, the initial response to equalization grants is the lowest for the three types of grants considered. Second, multipliers differ because the grant recipients spend the funds on different items. A third reason for the differences is that one province may spend a larger proportion of its funds on imported goods than does another province.

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3
Variations to Work Incentive Plans: A Simulation of the Manitoba Case*

Wayne Simpson and Derek P.J. Hum,
Department of Economics,
University of Manitoba.

4.1 INTRODUCTION

Granting income assistance to individuals capable of work is a controversial matter. Compassion often motivates government to extend assistance to all individuals in need, whether working or not. On the other hand, there is a presumption that such income assistance should not unduly hamper work incentives. The Canada Assistance Plan (CAP) was introduced in 1966 to fight poverty through a system of grants to provinces for cost-sharing income assistance (welfare). The CAP stipulates that provinces grant income assistance to all provincial residents "in need or likelihood of need", but may set their own levels of support and conditions of eligibility. There are no specific guidelines in the CAP Act with respect to families in need containing members capable of work. Though details vary from province to province, all provinces now have in place social assistance programs for those deemed "in need".

Manitoba's social assistance program defines persons "in need" as comprising the aged (sixty-five years of age or over); persons having a medically assessed long-term disability; widows or mothers with dependent children; persons separated or deserted for more than ninety days; a child under care through the Child Welfare Act; and persons pursuing undergraduate academic or vocational training. The Manitoba social assistance program also includes a Work Incentive Program with its own eligibility rules and regulations. Eligibility to participate in the Work Incentive Program is limited to those on provincial social assistance for thirty days or longer, not self-employed, and whose eligibility for social assistance resulted from the aged, disability, or Mother's Allowance categories.

An individual on the Work Incentive Program is allowed to retain from earned income the greater of $50 per month, or 70 cents for each hour worked, or 30 percent of gross earnings. The budget limits of participants are also increased by set amounts for clothing and other employment expenses such as transportation. In sum, the benefit structure for the Work Incentive Program is quite complex and depends upon the wage rate or the amount of earnings as well as interaction with other programs and Revenue Canada. In particular, the benefit reduction

rate is zero percent if earnings are less than $50 per month; however, where the wage rate exceeds $2.33 per hour, the 30 percent option is more advantageous than the 70 cents per hour option. The 30 percent option implies a benefit reduction rate of 100 percent for earnings between $50 amd $167 per month, and a 70 percent reduction rate thereafter. The 70 cents per hour option applies only when the individual receives less than the minimum wage, and the exact benefit reduction rate will depend upon the actual wage rate. Finally, when calculating the amount of income retained by a Work Incentive Program participant, the maximum ("ceiling") specified by the Canada Assistance Plan is not applied. Although the incentive structure implied by the Work Incentive Program is complicated, it is typical of provincial assistance programs throughout Canada.

Work Incentive Programs are normally judged on the extent to which they encourage welfare recipients to obtain employment since, if employment income is sufficiently high and stable over time, recipients will leave social assistance. This paper examines the effectiveness of the Manitoba Work Incentive Plan in encouraging employment. In particular, the effects of variations in the parameters of the Plan on labour supply, program costs and caseload are simulated to see if a superior program design is possible.

After a review of some significant features of the Work Incentive Plan, a sample of current participants is examined. Then, the effect on employment and caseload of alternative possible designs of the Work Incentive Plan is simulated using information on income patterns and participant characteristics from the sample. These simulations measure the benefits and costs of alternatives to the current program.

4.2 TAXATION RATES, EMPLOYMENT INCENTIVES AND THE WORK INCENTIVE PLAN

The analysis of work incentive programs is normally concerned with the receipt of an after-tax hourly wage as compensation for time diverted from other activities inside or outside the home. If after-tax wages were zero, there would be no monetary incentive to work. However, when after-tax wages are positive, individuals choose whether to work additional hours on the basis of two conflicting objectives: a desire for more income, which is available from working longer; and a desire for more non-work time (or "leisure"), which is purchased at a cost of wages. Higher after-tax wages make work more attractive (the substitution effect in economic terminology) but they also permit more consumption of leisure (the income effect). At some point, given the availability of work and the opportunity to choose its duration, individuals may decide not to work additional hours based on their family circumstances and preferences. If hours of work are predetermined by employers, then individuals will choose the best "package," or the job offer whose after-tax wage and hours is most attractive to them[1].

Any system of taxation of wages will affect employment decisions. Suppose that an individual has chosen a particular job that is most suited to his or her current circumstances and tastes. New taxes are then applied which reduce the after-tax wage. As a consequence, working is now less attractive, perhaps so much so that the person may decide to take another job involving fewer hours, to work fewer hours at the present job if that option is available, or not to work at all. Alternatively, the reduction in income implied by the tax increase may

encourage a reduction in the consumption of "leisure," implying more work to make up for lost income. The outcome is generally unpredictable and requires an examination of actual behaviour. We will return to the evidence on labour supply (the employment response to a change in after-tax wages) at a later stage in this paper.

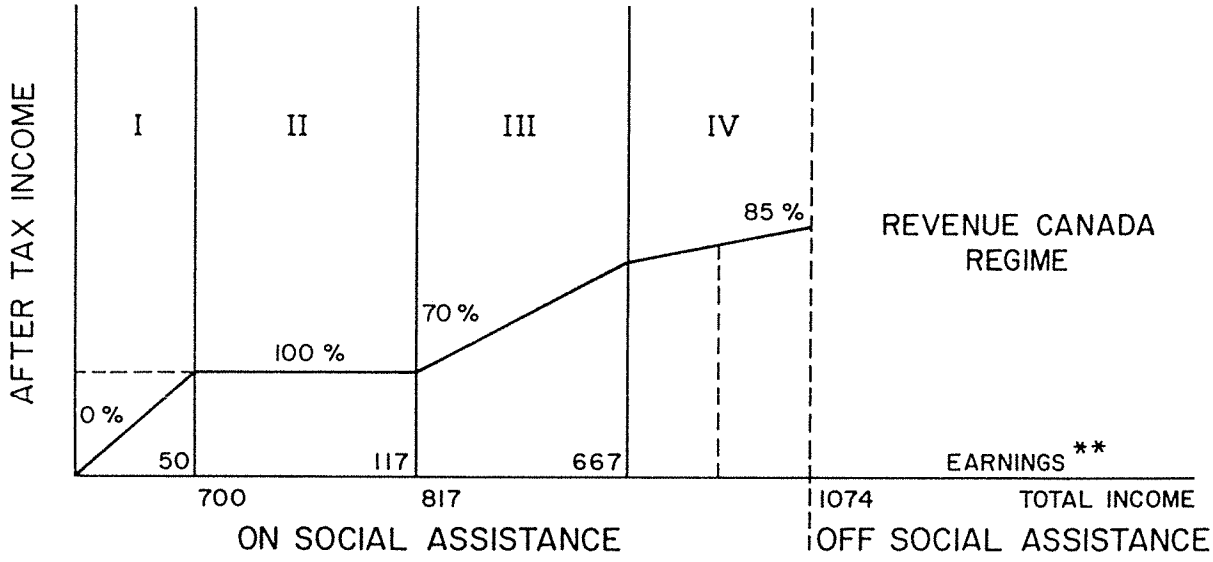
Assessment of the impact of the Work Incentive Plan on employment decisions requires knowledge of the tax schedule that plan participants face to determine their after-tax wage rates. For Manitobans, this schedule appears as Figure 1 below. Participants pay no tax on the first $50 of income earned each month; on the next $117 they pay a tax rate of 100 percent. Here the behaviour of individuals, under certain circumstances, should be predictable without reference to any evidence on labour supply. Given a choice of hours, individuals will avoid earning between $50 and $167 because after-tax wages are zero. We examine this prediction in a later section of this paper. Plan participants are effectively taxed at a rate of 70 percent on earnings between $167 and $667 per month. Beyond $667, standard income tax rates of about 15 percent are also applied, yielding a combined tax rate of 85 percent (see Figure 1). These separate segments of the tax system under the Work Incentive Plan ($50 or less, $50.01 to $167, $167.01 to $667 and $667.01 and over) will be retained for expository purposes in the presentation and discussion of the results of the sample survey.

Individuals generally leave the Social Assistance Program when the income retained under the Work Incentive Plan (70 percent of gross earnings less allowable work expenses) exceeds the basic monthly social allowance payable. Since the basic social allowance is adjusted to reflect family circumstances (such as age of children) and since work expenses vary across Work Incentive Plan participants, the earnings level at which people leave Social Assistance varies. In the simulations that follow, this "exit level" of earnings is calculated for individuals from information on their basic social allowance and work expenses, to determine the extent of the caseload reduction which might be achieved under alternative Work Incentive Plan designs.

It might be noted here that, as individuals leave the Social Assistance program, a complex series of benefit reductions (such as loss of the medical card) may occur to generate an effective tax rate in excess of 85 percent. It was possible, however, to model these additional tax effects at the point of exit from Social Assistance.

Figure 1

Tax Rates* and the Work Incentive Plan
(Manitoba 1983) (Individual)



* As the tax rate increases, the slope of the line decreases, thereby translating any earned income before taxes into less after tax income.

** These are earnings above social assistance and subject to various implicit taxes.

4.3 UTILIZATION OF THE WORK INCENTIVE PLAN: A PROFILE AND AN ASSESSMENT

In order to assess the impact of variations in the design of the Work Incentive Plan, a one-in-three sample of Plan participants was drawn from the three Winnipeg Income Security Offices[2].

Table 1 indicates the size of the Work Incentive Plan in relation to the Social Allowance Program in Winnipeg. Only about 6 percent of Social Allowance recipients (610 out of 10,218 cases) are involved in the Work Incentive Plan due, at least in part, to restrictions on eligibility (previously described). About 57 percent of Plan participants are Mother's Allowance (MA) cases; the remainder are primarily Long-Term Disability (LTD) cases. Since the focus of this paper is on employment incentives, the sample was restricted to regular or non-subsidized employment, thereby eliminating most LTD cases. As a result, 91 percent

of the sample consists of MA cases, must refer primarily to this group. and conclusions from the simulations

TABLE 1

Social Assistance Cases - Winnipeg, February, 1983.

Category	Southwest Office	Central Office	North Office	Total
Total Cases	4,781	2,455	2,982	10,218
-of which Mother's Allowance cases	2,116	1,015	1,454	4,585
Work Incentive Program	318	124	168	610
-of which Mother's Allowance cases	190	78	79	347
Sample (one in three of Work Incentive Cases)	102	45	60	207
-of which Mother's Allowance Cases				189[1]

[1] The sample excluded workers who were on subsidized work or training programs at very low rates of pay. These workers were predominantly on long-term disability and were not Mother's Allowance cases. Thus, Mother's Allowance comprised only 57 percent of total Work Incentive cases but 91 percent of the sample.

Table 2 provides a profile of the sample. As explained above, the sample consists primarily of female heads of households averaging 35 years of age with just under two children per family. Respondents have completed grade ten on average and have lived most of their lives in Winnipeg. They earned an average of $416.70 before tax in March, 1983, based on an average month of 90 hours of work and average hourly earnings of $5.20. The average basic Social Allowance payment of $611.34 was augmented by an incentive payment of $145.26, or 35 percent of earnings before tax, and unearned income of $44.88.

The various gross earnings categories (subjected to different marginal tax rates as discussed above) illustrate one particular pattern regarding income progression. Although rates of pay rise as earnings rise, they are still below $6.00 on average for those earnings in excess of $668.00 per month. Clearly, the major factor accounting for higher

earnings is hours worked, which rise dramatically across earnings categories. Those earning over $668.00 per month are doing so because they are averaging about 36 hours of work per week. The simulations in the next section will examine the potential impact on hours worked, and hence earnings, of alternative tax rates.

One surprising feature of the results in Table 2 is the proportion of Work Incentive Plan participants earning between $50 and $167 (37 out of 206 respondents or 18 percent). Since their marginal tax rate is 100 percent, their after-tax wage rate is zero, as mentioned previously. This punitive rate should have discouraged all work effort in this tax bracket. Perhaps this indicates either ignorance of the plan parameters, or persistent survival of the work ethic among some!

A more likely reason is that individuals do not have a free choice of hours and therefore monthly earnings. Some may accept an employment offer which places them in the 100 percent marginal tax bracket either because they do not receive an offer with earnings below $50 or above $167 or because they hope that the offer will provide more hours and earnings above $167 in the future. One would suspect that individuals would avoid jobs paying between $50 and $167 over a long period of time, but they might accept such an offer for a month or a few months. An examination of the earning patterns for the past twelve months of those earning between $50 and $167 in March, 1983 shows that 20 of the 37 respondents in this earnings and tax category had been there for two months or less. In earlier months they had either earned considerably more than $167 or else nothing.

TABLE 2

Profile of the Sample Survey of Work Incentive Plan Participants
(Mean Values)

Characteristic	Total Sample	Earned Income: Below $50	$50-167	$168-667	$668 & over
Family Size	2.84	2.59	2.73	2.75	3.51
Respondent's Age	35.6	34.1	35.8	35.8	36.7
Sex (Female) (%)	91.8	-	-	-	-
Years in Canada	33.5	32.7	35.3	33.8	32.4
Years in Manitoba	29.1	27.5	34.1	28.8	28.9
Years in Winnipeg	23.5	20.5	30.7	22.8	24.7
Grades Completed	10.2	10.4	10.1	10.2	10.0
Average Hourly Earnings ($/hr.)	5.20	4.00	4.52	5.13	5.97
Hours Worked	90.24	10.38	32.57	85.67	154.95
Gross Earnings ($)	416.70	41.50	121.17	415.84	914.71
Unearned Income ($)	44.88	0	42.32	46.61	62.57
Total Income ($)	461.58	41.50	163.79	462.45	977.28
Work Expenses ($)	51.75	9.18	19.60	67.98	89.61
Incentive Payment[1] ($)	145.36	162.33[3]	105.08[3]	144.85	258.71
Basic Social Allowance ($)	611.34[2]	534.62	545.25	608.55	680.80
Sample Size	206	27	37	96	46
-reporting hours	160	2	33	86	39
-reporting Social Allowance Payments	183	4	37	96	46

[1] Actual incentive payment plus direct payments plus overpayments
[2] n=184 observations
[3] In some cases deductions were substantially in excess of earnings for March, 1983.

4.4 SOME POSSIBLE VARIATIONS TO THE WORK INCENTIVE PLAN

The current Work Incentive Plan has some undesirable features, in particular, the 100 percent tax rate over some levels of earned income. Also, the high overall tax rate of 70 percent may have important disincentive effects on employment, hours worked and earnings, and hence the Social Assistance caseload. With these considerations in mind, the following plan variations are assessed in the next section:

Plan A - flat tax rate of 70 percent on all earnings
Plan B - flat tax rate of 50 percent on all earnings
Plan C - flat tax rate of 70 percent on all earnings plus an employment bonus of $50 per month payable to all Plan participants who work during the month
Plan D - flat tax rate of 50 percent on all earnings plus an employment bonus of $50.

Furthermore, it may be undesirable to restrict the Work Incentive Plan to what amounts to Mother's Allowance cases in terms of regular (non-subsidized) employment. Hence, the next section will also assess the potential impact of extending the Work Incentive Plans, A,B,C or D to the 55 percent of cases which are not Mother's Allowance cases.

4.5 THE SIMULATED IMPACT OF VARIATIONS OF THE WORK INCENTIVE PLAN

The proposed variations to the Work Incentive Plan alter the effective tax rates (or benefit reduction rates) paid by Plan participants. As discussed in Section 2, these alterations will change both the attractiveness of working and the after-tax income available, which have conflicting effects. A lower tax rate, makes work more attractive but raises the income available to consume leisure (not work). The net effect of a lower tax rate and a higher after-tax wage can only be predicted by reference to studies that estimate the net magnitude of these two effects, known as the gross wage elasticity. The gross wage elasticity measures the percentage change in hours worked (positive or negative) resulting from a 1 percent increase in the after-tax wage rate. Representative values of these elasticities are presented in Table 3 on the basis of a variety of studies carried out in the United States. (Unfortunately, there are no comparable studies for Canada, however, research is presently underway using MINCOME data which will provide these measures.) As may be seen from Table 3, gross wage elasticities are generally positive for females and negative for males.

Table 3 also includes representative income elasticity measures for males and females. These estimates are uniformly negative as expected - more income leads to greater consumption of leisure and less work. Income elasticities are required to assess the impact of the employment bonus on those working, since the bonus simply represents higher income for them. Once the effects of Plans A,B,C, and D on the after-tax wage rate and income of sample members were determined, the elasticity

estimates (median, low and high values) were used to estimate hours worked. For example, if the simulated plan raised wages by 10 percent and income (through the employment bonus alone) by 5 percent for a female in the sample, the median gross wage and income elasticities of 0.87 and -0.10 would raise hours by 8.7 percent (10% x 0.87) and lower hours by 0.5 percent (5% x -0.10) leaving a net increase of 8.2 percent in hours worked. This would increase gross earnings by 8.2 percent since the wage rate is assumed to remain unchanged. Gross earnings and plan details permit calculation of the incentive payment. Finally, sample members, for whom 70 percent of earnings less work expenses exceeded basic social allowance payments, were deemed to have left the Social Allowance Program and counted as a caseload reduction. Details on the simulation procedures are contained in the Appendix.

The simulation results for the four proposed plans are contained in Table 4 along with results from Table 2 for the current Plan. In each case for all elasticity estimates there are stronger work incentive effects in each of the proposed plans. This translates into higher earnings and some caseload reduction, which reduces average incentive payments in comparison with the current plan in some cases.

To understand these effects more clearly, compare the results for plan A and the current Plan at the median elasticity estimates. Plan A lowers the marginal tax rate to 70 percent from 100 percent for those earning between $51 and $167. This increases average hours worked (since the gross wage elasticity is positive) by 11 percent from 90 to 100 hours per month, raises gross earnings by 18 percent and leads to a caseload reduction of only 1. This is not surprising because all changes in marginal tax rates occur below $167 in earnings. The average monthly incentive payment rises by $1.68 to $146.94.

Plan C, as expected, shows fewer hours worked (for the same elasticities estimates) because of the (negative) income effect of the $50 employment bonus. (We will return to the employment effects of this bonus below.) The larger marginal tax reduction (to 50 percent) in Plans B and D results in greater increases in hours worked than Plans A and C, and more earnings, incentive payments and caseload reduction. The difference between Plans B and D, the employment bonus of $50, accounts for the lower hours and earnings and higher incentive payments in Plan D.

The above pattern holds for the low and high elasticity estimates in Table 4. Of course, the low elasticity estimates generate smaller increases (even a decrease in Plan C) in hours worked, earnings, incentive payments and caseload reduction compared with the median elasticities; the opposite is true for the high elasticity estimates.

Table 5 indicates the net cost or savings available from the Plan variations, extended to all 347 Mother's Allowance cases on the Work Incentive Plan. These additional costs or savings depend upon the change in incentive payments and the number of case reductions. For Plan A and the median elasticity estimates, for example, incentive payments would increase by $582.96 in comparison with the current Plan. But a caseload reduction of 2 would generate savings of $1,222.68 leaving a modest net savings of $639.72 (for a very modest Plan variation). Other Plan variations generally imply additional costs for the low and median elasticities, and savings only for the high elasticity estimates.

TABLE 3

Labour Supply Elasticity Measures - U.S. Data 1970-79.

	Median	Low[1]	High[2]
HOURS			
Adult Females[3]			
Gross Wage Elasticity	0.87	0.22	2.45
Income Elasticity	-0.10	-0.23	-0.06
Adult Males[4]			
Gross Wage Elasticity	-0.15	-0.20	0.02
Income Elasticity	-0.21	-0.38	-0.06
EMPLOYMENT			
Female Family Heads[5]			
Gross Wage Elasticity, All Wages	0.28	0.16	0.39
Gross Wage Elasticity, Low Wages	0.28	0.21	0.34
Adult Males[6]			
Gross Wage Elasticity, All Wages	0.01	0.00	0.01
Gross Wage Elasticity, Low Wages	0.01	0.00	0.01

[1] Low estimates represent the first quartile of estimate for hours and the lower estimate for employment from the sources cited.
[2] High estimates represent the third quartile of estimates for hours and the higher estimate for employment from the sources cited.
[3] Keeley (1981), page 103
[4] Keeley (1981), page 98
[5] Masters and Garfinkel (1977), pages 158 and 160.
[6] Masters and Garfinkel (1977), pages 66 and 88.

TABLE 4

Simulation Results (Average Per Participant Per Month)

	Hours Worked	Gross Earnings	Incentive Payments	Caseload Reduction
MEDIAN ELASTICITY ESTIMATES				
Current Plan	90.24	$416.70	$145.26	0
Plan A	100.37	492.88	146.94	1
Plan B	140.80	706.08	293.46	27
Plan C	97.38	478.79	193.64	0
Plan D	139.31	699.35	332.23	27
LOW ELASTICITY ESTIMATES				
Current Plan	90.24	$416.70	$145.26	0
Plan A	92.90	466.61	139.98	0
Plan B	102.17	515.27	243.15	9
Plan C	86.10	434.81	180.44	0
Plan D	98.16	497.08	285.48	7
HIGH ELASTICITY ESTIMATES				
Current Plan	90.24	$416.70	$145.26	0
Plan A	119.00	557.44	156.78	10
Plan B	236.52	1177.99	316.58	74
Plan C	117.50	550.12	201.60	10
Plan D	236.02	1175.68	342.84	74

(n=160)

TABLE 5

Net Incentive Payment Changes, Caseload Reduction, Social Allowance Cost Reductions and Net Cost or Savings Under the Plan Variation (Based on a Total of 347 Mother's Allowance Cases and Sample Results from Table 4).

	Incentive Payment Differential Per Month (Relative to Current Plan)[1]	Caseload Reduction[2]	Social Allowance Cost Reduction Per Month[3]	Net Cost (+) or Savings (-)[4]
MEDIAN ELASTICITIES				
Plan A	$ 582.96	2	$ 1,222.68	-$ 639.72
Plan B	51,425.40	59	36,069.06	+ 15,356.34
Plan C	16,787.86	0	0	+ 16,787.86
Plan D	64,878.59	59	36,069.06	+ 28,809.53
LOW ELASTICITIES				
Plan A	-$ 1,832.16	0	$ 0	-$ 1,832.16
Plan B	33,967.93	20	12,226.80	+ 21,741.03
Plan C	12,207.46	0	0	+ 12,207.46
Plan D	48,656.34	15	9,170.10	+ 39,486.24
HIGH ELASTICITIES				
Plan A	$ 3,997.44	22	$13,449.48	-$ 9,452.04
Plan B	59,448.04	160	97,814.40	- 38,366.36
Plan C	19,549.98	22	13,449.48	+ 6,100.50
Plan D	68,560.26	160	97,814.40	- 29,254.14

[1] (X-$145.26) times 347 where X is the average simulated incentive payment for the plan from Table 4.
[2] Y=347C / 160, where C is the caseload reduction from Table 4, rounded to the nearest integer value.
[3] Y times $611.34 from Table 2.
[4] Column 1 less column 3.

4.6 FURTHER CONSIDERATIONS

These numbers are clearly meant to be illustrative and several considerations or adjustments are appropriate. It should be emphasized that the figures in Tables 4 and 5 simulate changes in average hours worked based upon observations of comparable average behaviour in the United States (incorporated in the elasticity estimates). Since individuals are not normally free to choose the amount of hours they work, however, actual responses of average magnitudes shown in Tables 4 and 5 will be concentrated. Some individuals will work substantially more hours (shifting from part-time to full-time work, for example) while others will not be able to increase hours at all. The effect will be to increase the caseload reduction figures in comparison with Tables 4 and 5, particularly for Plans B and D. If the average increase of 50 hours worked under Plan B in Table 4 were concentrated among half the Plan participants (call this the affected group), each member of the affected group would increase average hours by 100. This would undoubtedly place most of them near full-time monthly hours worked (about 172). Assuming a wage of $5.97 for full-time workers from the last column of Table 2, the gross earnings of the affected group would rise to $1,027, exceeding the exit level of $963 ($611.34/0.7 + $89.61) based on average basic social allowance payment of $611.34 and work expenses of $89.61 from Table 2. Yet Tables 4 and 5 reflect caseload reductions of only 17 percent (27/160 or 59/347) not 50 percent. If caseload reductions are even doubled, however, substantial net savings are realized in Table 5 for Plans B and D except for the low elasticity estimates.

There is also an offsetting effect in that part of the increase in hours worked will arise from Mother's Allowance cases finding jobs and entering the Work Incentive Plan. That is, the reductions in after-tax wages induce more hours from those already working and induce more people to work. It is the sum of these effects that is represented by the increases in average hours in Table 4 for the Plan variations. Table 6 estimates the employment effect for each Plan based upon a gross wage elasticity for employment of 0.28 (Masters and Garfinkel, 1977, pp. 158,160). For Plan B, for example, 49 cases would enter the Work Incentive Plan. If these cases worked an average of 90 hours per month (what people now work on average in the Plan), they would account for 4410 hours out of a total of 48,580 (347 cases x 140 hours). The increase in hours for existing workers would only be 12,940 (48,580 - 4410 - (90 x 347)) or 37 hours per worker rather than 50 hours. If most adjustments in hours were from part-time to full-time work, only about three quarters of the first adjustment mentioned above would be appropriate. This would still suggest caseload reductions of 37 percent (50% x 37/50) or more than double those stated in Tables 4 and 5. On this basis, it would seem that caseload reductions and potential savings could be underestimated substantially by Table 5 for Plans B and D.

Another consideration is that the increased employment among Social Allowance recipients and the increased hours worked by Work Incentive Plan participants may be considered to be desirable per se. This argument may be made in terms of the discipline and self-esteem provided to those working, or in terms of higher potential output (and actual output if the economy recovers to full employment) in the

economy. Indeed, this is the major justification of the employment bonus (Plans C and D). The bonus makes work particularly attractive, inducing more Work Incentive Plan participants, higher incentive payments and, potentially, caseload reductions. The employment impact of the bonus is probably understated in Table 6, since it is most likely to attract entrants to work fewer than the average number of hours assumed. An entrant earning $2 per hour after tax (or benefit reductions) earns $7 per hour with the bonus for ten hours of work a month, but only $2.55 for 90 hours of work. Thus, if any employment is considered desirable, then Table 6 probably understates the benefit of the employment bonus.

TABLE 6

Estimated Employment Effects of Plan Variations

	% Increase Employment[1]	Number[2]
Current Plan	0	0
Plan A	0	0
Plan B	14	49
Plan C	9.33	32
Plan D	19.48	68

[1] Percentage change in after tax wages times estimated gross wage employment elasticity of 0.28.
[2] Out of 347 Mother's Allowance Cases on the Work Incentive Plan.

It should be noted that our estimated effects on employment and hours worked represent long-run effects and may not be realized for some time. Hence, the effects in the first year of a new Plan could be somewhat smaller than those discussed above.

A final consideration is coverage. The elasticity estimates in Table 3 indicate gross wage elasticity estimates that are zero or negative for adult males. Hence, any changes in after-tax wages would have not positive effects on hours or earnings. Unless these elasticity estimates do not reflect behaviour for adult males earning relatively low wages in Winnipeg, extension of coverage of the Work Incentive Plan beyond adult females would not be justified on the basis of work incentive alone. Extension to include adult females not on Mother's Allowance could be justified by the positive gross wage elasticities for adult females.

4.7 CONCLUSIONS

The existing Work Incentive Plan has some strong work disincentive elements. In particular, the effective tax rate of 100 percent on earnings between $51 and $167 discourages this range of part-time work. A modest change to tax all earnings at a flat rate of 70 percent (Plan A) would not increase Plan costs and could generate modest savings. A reduction in the tax rate to 50 percent (Plan B) for all earnings could be expected to raise hours worked by 50 percent and employment by 14 percent. Furthermore, caseload reduction could be large enough to generate savings in Plan expenditures if increases in hours worked are concentrated among those moving to full-time work status. An employment bonus of $50 (Plans C and D) could be expected to increase employment by another 5 to 10 percent.

These projections are based upon the resumption of long-run full employment conditions. Clearly, the incentive to work must be matched by the availability of work. With a recovery in economic activity purported to be underway, changes in the Work Incentive Plan should receive more favourable response from Social Allowance recipients and the general public.

NOTES

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[1] While many jobs are constrained institutionally to fall within set periods of time, work is theoretically also measured by effort. Therefore, absenteeism and "featherbedding" may be viewed as examples of adjusting, albeit imperfectly, the supply of labour.

[2] A one-in-three sample of Work Incentive Plan participants was drawn and information from the application for assistance, the eligibility decision, and monthly income details were recorded. Participants in special skills training programs outside the regular workforce were deleted. A total of 206 files were drawn.

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Appendix A

A

SIMULATION PROCESS

The effect on hours worked, earnings incentive payments and caseload reduction of variations to the Work Incentive Plan were simulated using evidence, discussed in the text, on labour supply behaviour in response to changes in after-tax wages and income. This appendix outlines the steps taken to carry out these simulations.

STEP #1: CALCULATION OF AFTER-TAX MARGINAL WAGE FOR CURRENT WORK INCENTIVE PLAN

IF	THEN
$G \leq \$50$	$W0 = G/H = R$
$\$50 < G \leq \$167$	$W0 = 0$
$\$167 < G \leq \$667$	$W0 = 0.3 \times R$
$\$667 < G$	$W0 = 0.15 \times R$

Where G is gross monthly earnings.
Wo is the after-tax wage.
H is hours worked and R=G/H is the gross wage rate before tax.

STEP #2: CALCULATION OF THE AFTER-TAX MARGINAL WAGE FOR SIMULATED PLANS

$W1 = 0.3 \times R, \quad G \leq 667$

$\qquad 0.15 \times R, \quad G > 667$

$W2 = 0.5 \times R, \quad G \leq 667$

$\qquad 0.35 \times R, \quad G > 667$

STEP #3: CALCULATION OF PERCENTAGE CHANGE IN AFTER-TAX WAGES AT THE MARGIN

$$DW1 = (W1 - W0) \times 200 (W1 + W0)$$

$$DW2 = (W2 - W0) \times 200 (W2 + W0)$$

STEP #4: CALCULATION OF HOURS WORKED AFTER THE WAGE CHANGE

$H1 = H \times (1 + (e \times DW1)/100)$

$H2 = H \times (1 + (e \times DW2)/100)$

where e is the gross wage elasticity estimate

STEP #5: CALCULATION OF PERCENTAGE CHANGE IN INCOME FROM $50 EMPLOYMENT BONUS (IF APPLICABLE).

$DY1 = \$50/(H1 \times W1 + UY + 25) \times 100$

$DY2 = \$50/(H2 \times W2 + UY + 25) \times 100$

where UY is unearned income.

STEP #6: CALCULATION OF HOURS WORKED AFTER INCOME CHANGE (IF APPLICABLE).

$H3 = H \times (1 + (E \times DY1)/100)$

$H4 = H \times (1 + (E \times DY2)/100)$

where E is the income elasticity estimate.

STEP #7: CALCULATION OF GROSS EARNINGS AND PAYMENTS UNDER THE SIMULATED PLANS.

$G1 = H1 \times R$

$G2 = H2 \times R$

$G3 = H3 \times R$

$G4 = H4 \times R$

$P1 = H1 \times 0.3 \times R$

$P2 = H2 \times 0.5 \times R$

$P3 = P1 + \$50$

$P4 = P2 + \$50$

STEP #8: CALCULATION OF CASELOAD REDUCTION

If $G1 \geq \frac{B}{0.7} + WE$, then $P1 = 0$

If $G2 \geq \frac{B}{0.7} + WE$, then $P2 = 0$

If $G3 \geq \frac{B}{0.7} + WE$, then $P3 = 0$

If $G4 \geq \frac{B}{0.7} + WE$, then $P4 = 0$

where B is the basic social allowance payment and WE is total allowable work expenses.

STEP #9: CALCULATION OF INCENTIVE PAYMENT DIFFERENCES

$DP1 = P1 - P0$

$DP2 = P2 - P0$

$DP3 = P3 - P0$

$DP4 = P4 - P0$

where P0 is the current monthly incentive payment (actual payment plus direct payments plus overpayment from previous months).

A.1 FROM THE "APPLICATION FOR ASSISTANCE" (LATEST FORM)

Number of Family Members _____

Sex of Applicant (M = Male, F = Female) _____

Age of Applicant _____

Length of Residence in Canada _____

in Province _____

in City _____

Marital Status (M = Married or common-law,
S = Single, W = Widowed,
D = Divorced, SD = Separated
or Deserted) _____

Treaty Indian (Y = Yes, N = No) _____

Spouse Living with Applicant (Y = Yes,
N = No, NA = Not Applicable) _____

Sex of Spouse (M = Male, F = Female,
NA = Not Applicable) _____

Age of Spouse

Members of Household Other Than Applicant and Spouse

	Sex (M = Male, F = Female)	Birth Date (Month/Year)
#1	_____	_____
#2	_____	_____
#3	_____	_____
#4	_____	_____

A.2 FROM THE "ELIGIBILITY DECISION FORM" (LATEST FORM)

Schooling of Applicant (Grades Completed): Grade _____

University Degree? (Y = Yes, N = No) _____

Vocational Training? (Y = Yes, N = No) _____

Trade Certificates? (Y = Yes, N = No) _____

A.3 FROM THE INCOME DECLARATION STATEMENTS (STARTING WITH THE LATEST FORM AND WORKING BACKWARDS FOR A MAXIMUM OF 12 CONSECUTIVE MONTHS)

Month #1

Employer #	Hour Rate	Hours Worked	Gross Pay
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
Total	_____	_____	_____

Total Unearned Income and Property Revenue _____

Gross Income _____

Payroll Deductions _____

Work Expenses _____

Gross Deductions _____

Net Income _____

Basic Social Allowance _____

Overpayment _____

Direct Payment _____

Social Allowance Payable _____

Work Incentive Option (A or B or C) _____

Incentive Payable _____

Total Payment _____

4
Redistribution and Equalization Payments in a Federal State: A Social Welfare Approach*

Derek P.J. Hum,
Department of Economics,
University of Manitoba.

J. Frank Strain,
Department of Public Policy,
University of Manitoba.

5.1 INTRODUCTION

Eliminating poverty and reducing income disparities requires redistribution of incomes. This process might loosely be termed "equalization" of individual inequality. In Canada, there are also fiscal arrangements to give funds to the provinces on a formula basis so that "all provinces [will be] able to provide reasonably comparable levels of public services without resorting to unduly burdensome levels of taxation."[1] These intergovernmental transfers are called Equalization Grants and are such an article of faith in Canada that their entrenchment in the Constitution is now complete.

The search for an acceptable formula for Canada's Equalization program became an urgent matter in the late seventies. The search initially began as a pragmatic response to rising federal costs of equalizing the widening disparities in provincial resource revenues. By the early eighties, several specific proposals designed to secure the long-term viability of the Equalization program had surfaced in the literature. Courchene and Copplestone (1980) suggested a two-tier system which would separate energy based revenues for special treatment. The Government of Canada (1981) proposed a scheme to adopt Ontario as the standard to which eligible revenues were to be equalized. Powrie (1981) suggested that resource rents be treated "as if" they were private income, a change that would effectively limit their equalization. Boadway and Flatters (1982a, 1982b) argued for a formula based on the notion of fiscal equity and, in doing so, developed a model to analyze the efficiency aspects of Equalization. Other contributors to the current debate include Davenport (1982), Graham (1982), Deutsch (1981), Lazar (1981), Brown (1981), Hum (1983), and Winer and Gauthier (1982). In 1982, Canada eventually adopted a formula embodying what Courchene (1983) has labelled as the representative five provinces standard.

The proposals for reform by Courchene and Copplestone, the Government of Canada, and Powrie all lack a sound normative rationale, and consequently, appear arbitrary and inconsistent. Although the fiscal equity approach (e.g., Boadway and Flatters) does have a clear normative basis, not everyone might

accept the underlying assumptions, or there might be other normative principles equally attractive and worth considering.

The purpose of this paper is to propose an alternative to the fiscal equity approach to Equalization. Methodological and philosophical issues are mentioned to highlight certain conflicts in first principles, but the main objective is to employ what we term a social welfare framework to detail a relationship between reducing income inequality and the system of Equalization grants to the provinces. We show how incorporating a "needs" index in the Equalization formula can reconcile the reduction of income disparities with interprovincial Equalization, while leaving open the question of the appropriate philosophical basis for the Equalization program.

We begin by outlining our theoretical framework, since it differs substantially from that commonly employed in the current literature. Next, we give the minimally necessary description of the Equalization formula and mention some recent developments. The following two sections describe, with little discussion, the major features and technical flaws of the formula, and identify differences in philosophical stance and specification which attend various proposals for reform. Finally, we outline (and simulate) how a needs-adjusted amendment would combine individual redistribution and Equalization, thereby providing a synthesis of social welfare and fiscal finance concerns. Conclusions are contained in a final section.

5.2 FEDERAL STRUCTURE AND A SOCIAL WELFARE FRAMEWORK

Conventional analyses of economic federalism tend to concentrate on allocative efficiency issues, with the result that few guides exist for examining questions of redistribution. This section sketches a general framework for considering redistributive issues in a federal state; the approach focuses directly, rather than indirectly, on the well-being of individuals.

How much should government transfer to those in need? How much "equalization of incomes" should there be? And what tax rate might be required for society to finance a given amount of redistribution? These policy questions may be considered formally by relating the discussion to individual poverty and specifying a Transfer Index based upon a class of measures suggested by Kakwani (1977).

A common index of the amount of poverty in society is the Head-count ratio:

(1) $F(x^*) = q/N$, where
x^* is some pre-determined poverty level,
q is the number of individuals with income less than x^*, and
N is the total number of individuals in society.

The Head-count ratio is simply the proportion of persons in society whose income is below the poverty line. Since this ratio ignores the degree to which those who are poor fall short of the poverty income level, an alternative measure is often used, namely, the sum total of all income deviations from x^*. This is called the poverty gap and represents the aggregate dollar amount necessary to eliminate poverty. If

u^* is the mean income of those with incomes below x^*, the poverty gap is: $q(x^* - u^*)$. However, the poverty gap does not indicate the relative ease or difficulty of eliminating poverty for society.

The transfer-of-income approach to poverty (Kakwani 1980, Ch.15) proposes the index:

$$(2) \quad P(x^*) = T(x^*) = [F(x^*)(x^*-u^*)]/u$$

to relate the poverty gap to society's total income, where u is the mean income of society. Accordingly, the measure $P(x^*)$ gives the percentage of total income that must be transferred from the non-poor to the poor so that the income of everyone below the poverty line may be raised to x^*. If $x^* = u$, it can be shown that $P(x^*)$ is equivalent to the relative mean deviation measure of income inequality (Kakwani 1980; Lemma 5.10, p.80); $P(x^*)$ then becomes the percentage of total income that must be transferred to equalize mean incomes. In short then, an anti-poverty target for society, in the sense of transferring sufficient income so that all individuals have at least x^* income, and an egalitarian objective, in the sense of equalizing incomes, shade into one another from the perspective of the transfer index, $P(x^*)$. Therefore $P(x^*)$ may be more generally viewed as a transfer or redistributive index. Furthermore, society's social welfare objective may be characterized as providing basic support in terms of income (or services) if x^* is less than u. Alternatively, society's social philosophy is egalitarian in spirit if x^* is equal to u.

In a federal country, the population can be assigned to mutually exclusive provinces, and the measure $P(x^*)$ defined for each province as well as for the country as a whole.

Denote:

u_i = mean income of province i
f_i = proportion of national population in province i
$F_i(x^*)$ = proportion of poor in province i
u_i^* = mean income of the poor in province i

Clearly, we can establish

$$(3) \quad F(x^*) = \Sigma f_i \, F(x^*), \text{ and}$$

$$(4) \quad u^* = [1 / F(x^*)] \, \Sigma F_i(x^*) \, u_i^* \, f_i \, .$$

That is, the proportion of poor in the nation is a weighted average of the proportion of poor in each province, the weights being the population proportions in each province. Similarly, the mean income of the poor in the federation is a weighted average of the mean income of the poor in each province, the weights being proportional to the income share of the poor in each province.

Substituting (3) and (4) into (2) yields

$$(5) \quad T(x^*) = P = 1/u \, \Sigma u_i f_i P_i$$

where

$$(6) \quad P_i = T_i(x^*) = [F_i(x^*)(x^*-u^*)] / u_i$$

is the Transfer Index for province i. Since $(u_i f_i)/u$ is the income share of province i, (5) and (6) effectively establishes the following proposition: the national Transfer Index for a federal country is equal to a weighted average of the Transfer Indexes of the provinces, the weights being proportional to the income share of each province. Accordingly, a federal decentralized government can decompose a national redistributive target into different provincial elements. It is obvious that the extent of redistribution

will depend upon the level chosen for x^*. A higher poverty line involves more redistribution and would require a higher average tax rate to finance. Moreover, x^* need not be identical for all provinces. Each province could establish its own x^*, in which case national uniformity would no longer obtain. Alternatively, each province might have a fixed transfer amount or maximum implied tax rate in mind, in which case the amount of redistribution or anti-poverty effort would vary by province. The significant point is that the Transfer Index allows a national redistributive objective to be specified and partitioned into provincial components for analysis or implementation; alternatively, provincial efforts may be aggregated to assess overall national performance.

The selection of x^*, hereafter called the target threshold, is pivotal to the Transfer Index. The level of x^* determines the proportion of the population considered poor, $F(x^*)$; alternatively, it gives the cost of achieving the objective, $C(x^*) = T(x^*)u$.

The several alternatives for the target threshold, x^*, may be related either to differing social philosophies or institutional situations.

1. Absolute Poverty Line ($x^* = Z$): This approach views redistribution in terms of an anti-poverty target, with poverty or need being defined as some absolute number of dollars or some basic level of service, Z. The Statistics Canada (Revised 1973) low income cut-off lines are based upon this approach. The intended recipients are usually individuals.

2. Relative Poverty Line ($x^* = au$): The target threshold is defined in terms of some fraction, a, of the average (or median) income or service level in society. This interpretation also sees redistribution in terms of an anti-poverty target, but defines poverty in relative terms. The approach of the Canadian Council on Social Development (1979, p. 5) is based upon this approach. The intended recipients are individuals.

3. Income Egalitarianism ($x^* = u$): The target threshold is defined as the average level of income in society. This interpretation is egalitarian in spirit since its aim is to equalize incomes (individual or group means). The intended recipients may be individuals or groups (provinces).

4. Basic Guarantee with an Income Test ($x^* = S/r$): The target level is viewed as the break even level in a guaranteed income plan with basic support, S, and subsidy rate r. This interpretation views redistribution in terms of providing a basic guarantee and scaling further transfers inversely to additional income. Intended recipients may be people or provinces.

5. Above Average Standard ($x^* = u + b$ or $x^* = \text{Max } u_i$): The target level exceeds the average of the collectivity. For example, it might be set at the mean income of the highest (or n highest) provincial mean incomes. This is neither pure redistribution nor income-sharing; it entails injection of net funds for distribution.

Within the context of provincial revenue sharing schemes, a net transfer of funds from the federal government is necessary. Provinces are typically the recipients of central government transfers.

6. Representative Average Standard: A "representative" number of provinces are selected to define the standard. If all provinces are included, this is referred to as the representative national average standard; since the present formula only uses Ontario, Manitoba, Quebec, British Columbia and Saskatchewan to define the standard, it is referred to as the representative five provinces standard.

To summarize, the definition of the target threshold is critical; its specification serves to distinguish among such redistributive objectives as: eliminating poverty, guaranteeing basic minima or equalizing incomes. The context of the redistribution - whether it be among individuals or between levels of government - is also important.

5.3 THE FORMULA FOR EQUALIZATION

The Canadian Equalization Program was initially designed to ensure that each province have access to revenues equivalent to that amount obtained from applying national average tax rates to national average tax bases. Revenues from a variety of sources were counted. A tax base (B) was defined for each revenue source, and a national average tax rate (t) calculated by dividing the total revenue (TR) by the total tax base for all of Canada (B_c). Taking the representative national average standard as a benchmark, the program may be represented algebraically by the formula:

$$(7) \quad E = TR \left[\frac{N_p}{N_c} - \frac{B_p}{B_c} \right]$$

where E is the Equalization payment to a province, N_p is provincial population, N_c is total population of Canada, B_p and B_c are respectively the provincial and Canadian tax bases. The bracketed expression represents "fiscal deficiency" if positive, and "fiscal excess" if negative. Provinces receive Equalization payments if their ratio of total population exceeds their share of the tax base; however, provinces with a fiscal excess are not taxed on their "excess"[2].

The essential principle underlying the above formula may be seen by regarding each province's fiscal resources as comprising its own tax revenues plus Equalization transfers and asking: What would an arbitrary province receive in a unitary state which imposed a uniform tax rate on a commonly-defined tax base? The "national tax rate" applied to the "national tax base" would yield total national revenue. If these revenues were given back to each "province" on a population share basis, then Equalization may be viewed as a system for achieving horizontal equity across individuals independent of location; the "provinces" being merely convenient tax administration units. But tax rates actually differ from province to province in Canada, either because of tax capacity, cost of public services or local preferences. Tax bases also differ with respect to composition and definition from province to province, either because some revenue sources are important in particular provinces or non-existent in others. Consequently, Equalization

can achieve some degree of fiscal uniformity in a federal system where tax and spending powers are constitutionally divided between levels of governments.

The preceding highly stylized description of Equalization grants has its basis in the 1967 Fiscal Arrangements. Prior to 1962, Equalization was determined on the basis of the two provinces with the highest per capita tax yield for the personal income tax, corporate income tax and succession duties. In 1962, the "national average" per capita yield was substituted. In 1967, Equalization was extended to 16 revenue sources. Consequently, a "full equalization" concept was embodied since virtually all provincial revenue sources were eligible for Equalization and the "national average tax rate" was employed in the calculations. In 1974, energy royalties were only included in part. In 1977, the corporate income tax base was broadened to include profits of provincially owned enterprises, a ceiling was imposed on Equalization payments arising from the resources sector, and certain ad hoc arrangements were introduced to ensure that Ontario retained its "have province" status. Finally, Bill C-26, which died on the order paper in 1979, attempted to reduce total Equalization payments as well as postpone Ontario's impending "have not" status by providing that any province whose per capita income exceeded the national average in the current and previous two years would be ineligible for Equalization transfers - a sort of reverse income-averaging. As already noted, the current formula, in place since 1982, is the representative five provinces standard. (See Courchene 1983 for a discussion).

5.4 FEATURES AND FLAWS OF THE EQUALIZATION FORMULA

The Equalization formula appears arbitrary and inconsistent and a full understanding of the program would certainly have to take into account many political economy considerations. Nonetheless, our abbreviated description does allow us to highlight the major technical flaws of the present arrangement[3].

From a purely technical standpoint, many contentious matters concern definitions. What items should we include in the tax base? (Where previously only three "standard taxes" were equalized, there are now over thirty revenue sources included.) What is the appropriate standard to employ in the formula? (Where previously the tax yield of all the provinces was considered, the per capita average of only five provinces is now used.) How much of a particular revenue source should be counted? (Energy revenues were previously counted only in part; they are now counted in total.) Should there be statutory floors (guaranteed minima to provinces?) or ceilings? (Under the new arrangements, total equalization payments cannot grow more rapidly than the growth of nominal GNP.) Without belittling the substantive basis of these questions, much of the disagreement surrounding the Equalization formula reduces to technical matters of definition.

A more significant criticism concerns the basic design of the formula itself. The present Equalization arrangement is asymmetric and non-redistributive. It is vulnerable to manipulation by provinces, and its funding basis is precarious. These features are, in fact, related. First, provinces with a fiscal deficiency receive Equalization payments, but provinces with a fiscal excess do not contribute directly to

the financing of the program. Hence, the formula is asymmetric and the program is non-redistributive in the interprovincial sense, since rich provinces do not transfer resources directly to "have not" provinces, nor contribute directly to a pool of funds from which such transfers are made.

In addition, the present Equalization formula has certain disquieting incentives. For example, a province may enjoy an increase in its Equalization grant by raising its own tax rate on a particular revenue base. This will occur if the province has a share of the base which is less than its share of total population. Therefore, the present formula biases "provincial preference in the direction of raising revenues from those tax sources for which they have a relatively small share of tax base."[4] The effect on Equalization grants of an increase in the provincial base is also significant, but theoretically ambiguous[5], indeed, increases in provincial revenues could "crowd out" Equalization grants. The fact remains, however, that provinces face a structure of incentives which they may choose to exploit to their advantage.

And finally, Equalization may distort allocative efficiency by inhibiting mobility of persons from have not regions to areas of the country where their contribution to productivity and growth would be greatest[6].

5.5 PHILOSOPHIES UNDERLYING EQUALIZATION FORMULA

The philosophy underlying Equalization is important for understanding criticisms of the present formula and proposals for reform. Most writers assume that Equalization is a matter between levels of government and related only indirectly, if at all, to individual citizens. On the other hand, others appeal to the principle of fiscal equity whereby "similarly situated citizens in different provinces are to receive comparable public services and bear comparable tax burdens." Additionally, Equalization is "justified and necessary only with respect to public goods."[7] Therefore, schemes to "equalize" individual incomes, through, say a negative income tax mechanism, do not substitute for Equalization grants to have not provinces[8]. We demonstrate in the next section that there need not necessarily be any conflict between equalizing individual incomes and Equalization grants as purely intergovernmental transfers; nonetheless, it is conventional to view Equalization as a matter between Canada and the provinces.

Another philosophical difference concerns whether the purpose of Equalization is to ensure every Canadian, regardless of provincial domicile, some level of "basic services," or alternatively, the level of "average services" in Canada. This topic is also related to the notion of fiscal need. If we define fiscal need as the difference between expenditures and revenues, rearrangement of the Equalization formula gives:

$$\frac{E}{N_p} = t \cdot \frac{B_c}{N_c} - t \cdot \frac{B_p}{N_p}$$

where the right-hand terms may now be interpreted as "expenditure

needs" and "revenue means," respectively. In the absence of an explicit adjustment for varying provincial needs, the "average need" is the "imputed need," and the program serves principally to equalize revenues across all provinces.

Courchene and Copplestone (1980, p.23) see the lack of definition of basic services as a serious flaw; although they note that the deficiency may be remedied theoretically by an index of relative need for each province (p.22), they suggest there are insurmountable practical problems (p.23). For others (Graham 1980, p. 48-9), the issue of defining basic services does not arise because the average overall cost is taken as the "standard expenditure" on which Equalization is based. Since the overall average need is the imputed need for every province, the present Equalization formula deals only with revenue; some have therefore suggested that the degree of provincial tax effort should also be considered because, all things being equal, a province with low revenues due to small tax effort ought not to receive Equalization grants[9].

The paramount issue from a social welfare perspective is the extent to which redistribution occurs, although the issues of funding and formula design are admittedly impossible to separate. As noted, Equalization grants are paid to provinces with a fiscal deficiency; provinces having a fiscal excess do not contribute. Consequently, this asymmetric feature implies the program is neither self-financing, nor redistributive on an interprovincial basis, and this is the case independent of whether some fixed level of "basic services" is guaranteed, whether the "average level" collectively determined is employed for calculation purposes, or whether the representative five provinces standard is used. Presently, the fiscal deficiencies of the "have not" provinces are removed by transfers from the federal government alone. Hence, the present Equalization formula is merely "compensatory" in the sense that lower-revenue provinces receive central government grants to raise their total fiscal resources to some pre-determined target level; to repeat, it is not redistributive across provinces.

The distinction between a compensatory and redistributive formula can now be appreciated. Removal of the asymmetric feature of the current formula would enhance interprovincial redistribution. Simultaneously, definition of a target threshold of basic services below the national average level results in only limited redistribution and partial revenue equalization. Establishing the target threshold as the national average would imply full revenue equalization. But setting a target threshold in excess of the national average, even with a symmetric Equalization formula, would require compensatory transfers in addition to redistributive transfers. A revenue-sharing pool alone would not be sufficient since an externally defined level of "basic services" that exceeds the national average standard would mean an overall net fiscal deficiency. Therefore, if Equalization is to be more than merely redistributive, a target threshold in excess of the national average implies that additional revenues must be forthcoming. In a federal system with shared tax and spending powers, the level of government with the excess fiscal capacity has the greater capacity to shoulder responsibility for Equalization. In the past, it has always been assumed that Canada possessed the excess fiscal capacity.

5.6 NEEDS-ADJUSTED EQUALIZATION AND REDISTRIBUTION

Suggestions to reform Equalization may be related to certain definitions and features of the present formula. For example, Davenport (1979) proposes that Equalization transfers be made on a net payment basis, with the "have" provinces being taxed for transfers to the "have not" provinces on the basis of an Adjusted Personal Income (API) measure. Davenport's scheme would therefore remove the asymmetric feature of the present formula and redefine the tax base for Equalization. Courchene (1979, 1980) proposes a two-tiered system. The first tier would operate much as the present Equalization formula, including federal financing; but the second tier would be a provincially financed, purely redistributive, negative income tax type plan. That is, the second tier would be a "fully equalizing" revenue sharing pool. Other suggestions include adjusting Equalization transfers for relative incomes or the size of the urbanized population (Boadway 1980, p.72 and Courchene and Copplestone 1980), or altering the treatment of some revenue items (Powrie 1981). We demonstrate how the index $P(x^*)$ might be incorporated and interpreted in the context of Equalization.

The present Equalization formula is given by

$$(7) \quad E = TR \left[\frac{N_p}{N_c} - \frac{B_p}{B_c} \right]$$

where the subscripts c and i refer to Canada and a given province, respectively. Since the poverty measure

$$(2) \quad P = T(x^*) = \frac{F(x^*)(x^*-u^*)}{u}$$

has been defined, application of (5) and (6) yields

$$(9) \quad P.u.N = \Sigma N_i u_i P_i \text{ , or}$$

$$(10) \quad t_c B_c = \Sigma \frac{N_i}{N} t_c B_c = \sum_i t_i B_i$$

where $P = t_c$, $P_i = t_i$, $f_i = N_i/N$, $B_c = uN$, $B_i = u_i N_i$, N_i is the population of province i, and N is the total population.

Fixing x^*, Equalization for any province may be written as

$$(11) \quad E = \frac{N_i}{N} t_c B_c - t_i B_i$$

Manipulating (11) and denoting $t_c B_c$ as TR yields

$$(12) \quad E = TR \left[\frac{N_i}{N_c} - \frac{t_i}{t_i} \quad \frac{B_i}{B_c} \right]$$

which is the formula (7) with an adjustment factor.

Since $t_i = P_i$, $B_i = u_i N_i$, $t_c = P$ and $B_c = uN$, it is clear that (12) represents a "needs-adjusted" Equalization formula. Recall that

$$(6) \quad t_i = P_i = \frac{F_i(x^*)(x^*-u^*)}{u_i}$$

and we have

$$(13) \quad \frac{t_i}{t_c} = \frac{P_i}{P} = \frac{F_i(x^*)(x^*-u_i^*)}{F(x^*)(x^*-u^*)} \quad \frac{u}{u_i}$$

Accordingly, the adjustment for "need" takes into account the relative amount of poverty in a given province or, equivalently, the relative provincial tax effort required to eliminate poverty in that province.

5.7 AN ILLUSTRATIVE SIMULATION FOR CANADA AND THE PROVINCES

With formula (2) for the transfer index, it is possible to calculate the Equalization entitlements associated with different specifications of the redistributive objective. An illustrative simulation is presented below. The calculations employ pretax and pretransfer family income distribution data derived from the 1979 Survey of Consumer Finances[10]. Since the value of the transfer index (and thus the corresponding Equalization entitlements) depends on the target threshold x*, five alternative definitions of x* are employed to represent a range of values. They are: (1) $8,696, which is half the Canadian mean income; (2) $12,000; (3) $14,000; (4) $17,393, the mean Canadian income; and (5) $20,561, which is the maximum value of all provincial mean incomes. Since the data are based on the family unit rather than the individual, and not adjusted in any way, the simulations should only be taken as suggestive. Nonetheless, the simulations demonstrate both the practical and normative appeal of the social welfare approach, and that the distribution of entitlements associated with the social welfare approach differs significantly from that generated using the representative tax system.

Table 1 illustrates the extent to which the poverty index (column 3), per capita Equalization entitlements (column 4), and gross entitlements (column 5) rise as the target threshold is raised. This is as expected. Table 1 also demonstrates the sensitivity of the ranking of provinces on the basis of "relative needs" to the choice of threshold. For example, when one-half the Canadian mean income is set as the threshold, Newfoundland is in greatest "need;" but when the threshold is the mean Canadian income Prince Edward Island emerges as the "neediest" province.

To highlight the financial implications of our needs-index proposal, the actual distribution of Equalization entitlements in 1979 as allocated, using the representative national average standard, is reported in Table 2. A comparison of Tables 1 and 2 reveals that the assignment of "have" and "have not" statuses to provinces is not sensitive to the choice of formula. However, it is important to recall that Ontario would have assumed "have not" status under the representative tax system formula if it had not been arbitrarily amended to make Ontario a nonrecipient of Equalization monies. Since few Canadians would likely assign Ontario a "have not" status, there is good reason to question the normative basis of the representative tax system formula.

Further comparison of the two tables also shows that the ranking of provinces according to the "relative needs" formula is not robust. This should not be surprising given the sensitivity of the ranking to choice of threshold. Nonetheless, the needs-adjusted formula does rank Newfoundland and Prince Edward Island as "poorest," followed by New Brunswick, Nova Scotia, Manitoba, Quebec and Saskatchewan. Alberta is the "richest" of the provinces assigned "have" status. But notice that, quantitatively, Newfoundland, Prince Edward Island, Manitoba, and Saskatchewan gain relatively under the transfer index formula, whereas Quebec is a major loser.

TABLE 1

Transfer Index Equalization Entitlements

PROVINCE	MEAN INCOME	P(X*)	EQUALIZATION (Per Family)	EQUALIZATION (Thousands$)	-X*-
NFLD.	11,231	.2642	1,245.3	230,509	U/2
		.4326	1,926.6	363,277	12,000
		.5438	2,373.1	439,268	14,000
		.7502	3,051.1	564,751	U
		.9693	3,706.4	686,051	Max (U(i))
P.E.I.	10,758	.2533	1,003.3	45,753	U/2
		.4283	1,712.1	78,074	12,000
		.5487	2,169.2	98,914	14,000
		.7856	3,077.8	140,349	U
		1.0244	3,841.7	175,181	Max (U(i))
N.S.	12,472	.1791	512.0	166,710	U/2
		.3068	930.8	303,063	12,000
		.3995	1,248.7	406,572	14,000
		.5786	1,842.4	599,898	U
		.7708	2,434.4	792,626	Max (U(i))
N.B.	13,446	.1878	803.3	200,571	U/2
		.3027	1,174.2	293,190	12,000
		.3817	1,398.1	349,096	14,000
		.5358	1,829.9	456,933	U
		.7035	2,279.4	569,174	Max(U(i))
QUE.	16,382	.1132	132.5	326,779	U/2
		.1890	200.3	493,769	12,000
		.2434	253.1	624,048	14,000
		.3491	344.7	849,447	U
		.4642	424.7	1,047,125	Max (U(i))
ONT.	18,276	.0852	(164.8)	(548,690)	U/2
		.1440	(264.2)	(879,649)	12,000
		.1861	(337.1)	(1,109,134)	14,000
		.2700	(439.9)	(1,464,748)	U
		.3645	(518.2)	(1,725,493)	Max (U(i))
MAN.	14,350	.1632	620.2	241,000	U/2
		.2667	931.5	361,972	12,000
		.3395	1,137.9	442,183	14,000
		.4796	1,508.3	586,126	U
		.6311	1,877.1	729,436	Max (U(i))
SASK.	16,660	.1071	62.4	24,640	U/2
		.1823	141.2	55,767	12,000
		.2370	214.1	84,586	14,000
		.3433	344.9	136,252	U
		.4554	407.1	160,818	Max (U(i))
ALB.	20,561	.0562	(566.4)	(464,544)	U/2
		.0985	(807.7)	(714,128)	12,000
		.1306	(1,049.0)	(860,398)	14,000
		.1921	(1,424.7)	(1,168,513)	U
		.2629	(1,774.3)	(1,455,317)	Max (U(i))
B.C.	19,497	.0801	(160.2)	(187,366)	U/2
		.1351	(261.9)	(306,306)	12,000
		.1736	(349.6)	(408,809)	14,000
		.2476	(547.0)	(639,747)	U
		.3284	(777.0)	(908,797)	Max (U(i))
CAN.	17,393	.0990			U/2
		.1665			12,000
		.2147			14,000
		.3090			U
		.4128			Max (U(i))

Source: All calculations in this paper are based on data obtained from the Statistics Canada microdata tape "Incomes (1979), Census Families" which contains data collected in the 1980 Survey of Consumer Finances. All computations on this data base were done by the authors.

TABLE 2

Actual Equalization Entitlements 1979-80

Province	Equalization (Per Capita)	Equalization (Thousands$)
Newfoundland	589.0	337,000
Prince Edward Island	626.0	77,000
Nova Scotia	484.0	410,000
New Brunswick	502.0	352,000
Quebec	241.0	1,523,000
Ontario	0.0	0
Manitoba	258.0	266,000
Saskatchewan	42.0	41,000
Alberta	0.0	0
British Columbia	0.0	0
Canada	---	---

Source: Courchene and Copplestone (1980, p. 19).

5.8 CONCLUSION

The Equalization formula we propose has the following significant implications. First and foremost, it incorporates the concept of relative need. Use of the index $P = T(x^*)$ would ensure that each province receive the appropriate transfer amount to combat poverty or redistribute individual incomes. Although Equalization may continue as a matter of grants between governments, the new formula means that any nationally specified anti-poverty objective or desired degree of individual redistribution can be made consistent with a system of formula intergovernmental grants. It remains true that provinces may not use their Equalization payments to reduce poverty or individual inequality. However, Equalization payments are a sub-category of unconditional grants; therefore they share this criticism with all unconditional transfers.

The point remains that a formula is possible which reconciles reducing individual disparities and Equalization. And since P is a poverty measure, the normative basis for adjusting the Equalization formula by this index has great intuitive appeal. Further, our formula leaves open the definition of the target threshold x^*, and whether or not Equalization should constitute mere revenue-pooling or possibly include net transfers between levels of government. The target threshold x^* may be defined at some "basic level" such that x^* is less than u; alternatively, it might be set at the national average level $x^* = u$. Or x^* may exceed u in which case net funds would be necessary. The latter would then imply a system of compensatory grants as well. Symmetry is a desirable property of Equalization for pure redistributive purposes, and finally, the index P is both practical and easy to calculate.

Equalization is fundamentally a program of unconditional transfers between governments in a federal state. Whether or not richer provinces should contribute directly to its funding and thereby make the program redistributive in an interprovincial sense is a matter of controversy. So too is the question of federal compensatory transfers to bring individual provincial revenues up to some arbitrary level. But that transfer amounts might vary according to differing provincial need is a view of long standing. Its origins might even be traced back to the Statutory Subsidies and various "debt adjustment" or "special need" grants at Confederation. The Duncan Commission introduced additional interim grants for the Atlantic Provinces; and the Depression saw special grants to the Prairies. More recently, the Atlantic Provinces Adjustment Grants which were initiated in 1958, and continued under the name of "Additional Grants" in 1961, constitute in effect additional unconditional assistance to provinces deemed in greater need[11]. In one form or another then, these grants implicitly recognize the factor of relative need. Our index in the Equalization formula clarifies the implications of the target threshold, x*, and combines the objective of redistribution with the notion of Equalization grants as purely intergovernmental transfers. It is possible therefore to reconcile the fiscal finance approach with a social welfare viewpoint of redistribution in a federal state.

Since any public policy will reallocate resources, economists are fond of discriminating among alternatives by examining the efficiency of an allocation. This approach has also been common in the recent literature on the Canadian Equalization program. However, one might also ask if a given allocation is equitable. Our concentration on equity consideration to the exclusion of efficiency is defended on a number of grounds. First, the very notion of Equalization is inherently redistributive. Thus, a focus on equity would seem to be justified, particularly since most other authors seem to ignore equity altogether. Second, the transfer-of-income approach does not require the adoption of a specific model of the economy. As a consequence, we need not presume any "true" model of the economy. Indeed, given that normative examinations of Equalization other than ours are typically based upon a neoclassical model of spatial adjustment - which is, at best, suspect in a world with heterogeneous capital goods and evolving through historical time - the Transfer Index approach has greater intuitive appeal. Despite this, our approach may be vulnerable to the following criticism.

It could be argued that redistribution should occur through the tax system. This is the view of Courchene (1978) and others who argue that a Negative Income Tax is the appropriate mechanism to achieve egalitarian objectives. Although Courchene shares the view that Equalization is (at least in part) a method of redistributing income to the poor, he holds that it is not a very effective policy for achieving this end, since it redistributes income between governments rather than individuals. Moreover, Equalization is an unconditional grant program, thus there is no mechanism to compel provincial governments to behave in such a way as to "improve" the distribution of income. In short, Equalization is a matter between governments, not individuals, an issue we identified as one involving "first principles".

A second criticism, based on the fiscal equity approach of Boadway

and Flatters, flows from their suggestion that efficiency and equity reinforce, rather than conflict with one another. We cannot here examine their argument in detail but their position is not very different from Courchene's. However, Boadway and Flatters do introduce one important consideration by recognizing that comprehensive incomes of like individuals in different provinces of a federal system are unlikely to be equal, even when direct market incomes are identical. As a consequence, intergovernmental transfers which equalize fiscal residual (the net benefits of provincial fiscal activity) are required to ensure both equity and efficiency. By equalizing fiscal residual, the transfers eliminate inefficient fiscally induced migration and ensure horizontal equity. Boadway and Flatters then argue that the tax/transfer system should be used to achieve vertical equity (egalitarian aims). Thus, Equalization is consistent with income redistribution in their framework. Because Equalization equalizes the net fiscal benefit component of comprehensive (Haig-Simons) income across provinces, "Equalization is a necessary complement to any redistributive tax program based primarily on market incomes."[12]

The Courchene-Boadway-Flatters position amounts to the following: the Equalization program is not the appropriate mechanism to achieve social welfare objectives, since it transfers income unconditionally between governments and not people. However, because fiscal activity by provinces affects the comprehensive incomes of individuals, an Equalization program to equalize the impact of provincial fiscal activity must be in place if egalitarian objectives are to be met. Accordingly, Courchene-Boadway-Flatters offer an indirect reconciliation of fiscal finance-social welfare concerns by suggesting that Equalization and personal income taxation are separate, but complementary programs. Since almost all economists discussing Equalization focus on provincial fiscal activities (tax and spending policies), it is not surprising that the program is seen as a matter between governments. But there are others who also accept the principle of fiscal equity but base their position on individuals, not governments[13]. Thus, it is wrong to assume that traditional views (with the important exception of Courchene who focuses on fiscal gap) are based on a non-individualistic position, or neglect completely the issue of equity. On this latter matter, we must agree with Milton Moore (1981, p.224) who forcefully argues that the horizontal equity rationale for Equalization is no longer acceptable. He wrote recently:

> An alternative is to recognize that the Equalization payments are income transfers between persons resident in different provinces. Governments are only intermediaries. Since equity relates to persons, not governments or groups comprised of differently situated persons, the restructuring of payments should be based on the economic (distributive) justice paradigm."[14]

NOTES

* We would like to thank Norman Cameron, Paul Davenport and James Dean and an anonymous reviewer for their comments on an earlier draft.

[1] Federal-Provincial Tax Structure Committee 1966, p. 15.

[2] This description of the formula draws on Courchene and Beavis (1973) and Courchene and Copplestone (1980). The notation has been simplified for convenience.

[3] Other technical details are tangential to our main purpose and are not discussed here.

[4] Courchene and Beavis, 1973, p. 495.

[5] Ibid., p. 492.

[6] Courchene 1970; Winer and Gauthier, 1982.

[7] Graham 1980, p. 45-6.

[8] Ibid., p. 47; also Usher 1980, p. 27.

[9] Boadway 1980, p. 47-8.

[10] A pretax-pretransfer definition of income is preferable for two reasons. First, since provinces engage in redistributive activities, a poverty index based on a post-fiscal activity income definition would penalize provinces with the greater anti-poverty effort. Second, the pretax-pretransfer definition minimizes the possibility of program induced changes in provincial government behaviour. With a pretax-pretransfer definition, provinces are unable to influence the size of their entitlement by changing their redistributive activity. However, it may be desirable under certain circumstances to modify the pretax-pretransfer data. For example, natural resource rents accruing to provincial governments may give rise to interprovincial income disparities not captured in the income distribution data. Such an adjustment has not been made here.

[11] Moore, Perry and Beach 1966, pp. 2,8,11,13,61,76.

[12] Boadway and Flatters, 1982a, p. 58.

[13] See Buchanan 1950, Graham 1964, and Boadway and Flatters 1982a, 1982b.

[14] Moore 1981, p. 244.

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5
Western Outlook

Greg Mason and Elizabeth Waelbroeck-Rocha,
Institute for Social and Economic Research,
University of Manitoba.

6.1 NATIONAL

The national economy continues to consolidate the recovery, however, concern is growing over some important indicators. In particular, interest rates, while remaining generally stable, have recently increased, and the large U.S. deficit continues to haunt world-wide recovery. Inflation, while showing no signs of rebounding to double digit levels, has also shown some indications of rising, demonstrating that the underlying forces impelling price increases have yet to be tamed and controlled. Unemployment, also shows an upward trend.

The strength of the U.S. economy continues to be surprising and many important sectors such as cars continue to revise sales forecasts upward. In 1984 all major car manufacturers in the U.S., even American Motors expect to make money. Unfortunately for key Canadian exports such as minerals, pulp and paper and lumber, the U.S. recovery will probably not translate into particularly robust markets. Most mineral prices remain depressed, and third world countries have shown little inclination to curtail production. Copper markets in particular will remain sluggish with large stocks and the threat of important restrictions by the U.S. The only really bright spot in Canadian mining is gold, with the new finds at Hemlo positioning Canada firmly in third position as a producer behind South Africa and the U.S.S.R.

Forestry will also face an uncertain period. The domestic demand for lumber is driven by both residential and non-residential construction. Public sector restraint in particular will limit non-residential construction, while, without special stimulas from government, it is expected that housing starts in 1984 will remain modest. Demand from the U.S. is also expected to remain stable, and lumber producers there have apparently decided to harvest rather than speculate that prices will increase.

Agriculture is a bright spot, however, even here protectionism confronts the Canadian exporter. Competition from Australia and Argentina continues to be vigorous in wheat and other cereals, however, oilseeds will probably have ready markets.

Manufacturing will continue to expand, although it is difficult to say whether output will taper toward the end of the year as some analysts suggest. A pivot point around which

much of the current analysis and forecasting occurs is whether the inflation adjusted interest rate is a key decision variable for manufacturers and others in interest rate sensitive sectors. The crux of the debate is whether recent profit levels, which are now at the same percentage of GNP as prior to the recession, can overcome the disincentives to investment posed by high real interest rates. At macro levels this debate cannot be resolved. Since there is considerable variation among sectors, there is legitimate concern that these high real rates of interest will encourage investment of profits outside the country and not in new plant and equipment domestically, although banks have probably become much more wary of loans abroad. Exchange rate fluctuations, which have tended to make Canadian goods expensive relative to purchases in other countries (except for the U.S.), continue to limit access to European markets - as does the protectionism currently being practiced increasingly by the European Common Market. Unemployment will remain persistently high with little indication that any but very gradual improvement will be possible. Youth unemployment remains very serious, the only growth industry being universities and trade-schools whose enrolments present some of the highest percentage gains in the economy. A key issue is just who will dominate economic policies over the summer. With the Liberal leadership in full swing it is likely that Mr. Bouey will have the last say and interest rates could rise if the dollar displays continued weakness.

6.2 MANITOBA

In the previous Western Outlook (December 1983), a number of Manitoba indicators looked particularly promising. Shipments, for example, were recorded as having a 2.3 percent increase over the same month (July) in 1982. However, and this is an important point, subsequent revisions to the data provided by Statistics Canada have reduced this to an increase of only +.2 percent. The most recent available information on shipments by Province is for October 1983, where a 3.1 percent increase over October 1982 is recorded. Despite this relatively robust indication, even a cursory examination of the recent history of shipments (see Table 1) gives little reason for optimism. Although the severe contraction of mid 1982 has been eliminated, evidence of a strong recovery is hard to discover.

Labour markets continue to improve, although the decline in unemployment has halted temporarily. Employment continues to grow steadily and in December 1983 posted a 4.4 percent increase over December 1982. The economy continues to add jobs beyond those which existed prior to the recession.

Inflation remained steady until January and then took a sharp jump (see Leading Indicators section). It is most likely that inflation rate figures for Manitoba, especially Winnipeg, will be spurious for the first few months of 1984 reflecting a vigorous food price war, subsequent attempts by retailers to recoup their losses, and some Marketing Board change (milk). It is wise not to read too much into trends in consumer prices for Manitoba at least until the late spring.

Retail trade continues to perform well, reflecting also the sustained growth in real wages and salaries. In this latter respect the Manitoba

economy is outperforming all other western provinces, where employment is rising more slowly and real average weekly wages are curtailed by public sector wage restraints. The government's continued commitment to restraint in Manitoba may limit real wage increases to some extent, and hence limit consumer spending in the future.

TABLE 1

Manitoba: Percentage Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP-MENTS	UNEMPLOY-MENT RATE	EMPLOY-MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY WAGES & SALARIES	LEADING INDUSTRY EMPLOYMENT: MANUFACTURING
JAN82	9.0	2.1	2.5	6.5	-0.6	1.4	0.1	1.7
FEB82	9.9	3.1	8.6	6.6	1.3	0.8	1.2	0.9
MAR82	9.9	2.7	0.4	7.2	-0.2	-4.7	0.7	-1.9
APR82	9.6	1.5	-4.9	7.4	-0.2	-0.8	1.0	-4.3
MAY82	9.6	-0.5	5.3	7.9	-1.5	3.4	0.1	-2.0
JUN82	8.3	2.1	-3.5	8.4	-1.3	-0.4	1.7	-5.2
JUL82	8.0	2.5	-9.7	8.1	-1.9	-4.1	2.6	-7.6
AUG82	7.8	-0.2	0.4	9.5	-2.4	-0.7	1.8	-11.7
SEP82	7.8	0.1	-5.3	9.4	-1.5	-2.6	1.9	-14.3
OCT82	7.8	-0.8	-11.5	9.8	-2.0	-1.8	2.4	-15.3
NOV82	8.5	-2.7	-7.0	10.6	-3.0	-6.5	1.6	-14.1
DEC82	9.6	-3.5	-6.3	10.7	-2.0	-3.6	1.2	-14.8
JAN83	7.7	-2.3	-1.5	10.0	-0.9	-2.5	0.9	-13.0
FEB83	7.5	-3.5	-9.3	10.1	-2.8	-3.9	-0.1	-12.9
MAR83	7.3	-3.5	-4.9	9.7	-0.9	0.7	1.0	-10.7
APR83	8.2	-3.9	-3.2	9.6	-0.4	-6.6	.	.
MAY83	7.6	-2.3	-0.5	10.3	0.9	-3.2	.	.
JUN83	7.0	-2.1	-0.0	9.8	0.4	4.3	.	.
JUL83	7.1	-2.4	0.2	9.6	1.3	3.9	.	.
AUG83	7.1	-0.7	-0.2	8.8	3.6	0.7	.	.
SEP83	6.0	0.2	-1.0	9.1	2.6	2.9	.	.
OCT83	5.6	2.0	3.1	9.3	3.3	7.6	.	.
NOV83	4.8	3.2	.	8.6	4.7	5.7	.	.
DEC83	4.7	.	.	8.5	4.4	5.0	.	.

In summary, Manitoba is expected to continue to consolidate its recovery quite probably at close to the national average, but it is important to stress that progress remains tentative.

6.3 SASKATCHEWAN

The Saskatchewan economy is expected to grow at rates well above the national average throughout 1984. Assuming a normal crop year, grain exports would continue to remain strong, although the longer term threats from other exporters and portectionism within the European Economic Community (assuming they manage to sort out their farm policies) must be acknowledged. The recession is now well behind the Saskatchewan economy.

As indicated by us in December,

the key variables in the growth matrix remain agriculture and non-mineral mining. There is some indication of softening in retail trade which turned more sharply negative than in other western provinces. Shipments have increased dramatically and indicate that manufacturing and movements of agricultural products will provide a strong support for the economy in the early part of 1984.

Wage restraint in the public sector may also be lifted in the fiscal year 1984-85 and this would have a favourable impact on growth in real wages and salaries (assuming inflation remains stable). However, much of this increase, while beneficial to retail trade sectors (i.e., car dealers), will probably have most of its impact in eastern Canada (i.e., car manufacturers and other big ticket items).

One troubling sign is the persistence in high unemployment. The rate of joblessness has trended upward slightly during the second semester of 1983. Remember these are seasonally adjusted figures; in general Saskatchewan has not lowered its unemployment rate during this recovery. This may be an indication of structural unemployment due to changes in the basis for the economy and because of immigration, possibly from Alberta.

TABLE 2

Saskatchewan: Percent Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP-MENTS	UNEMPLOY-MENT RATE	EMPLOY-MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY WAGES & SALARIES	LEADING INDUSTRY EMPLOYMENT: AGRICULTURE
JAN82	10.2	1.0	-2.0	4.8	1.2	-2.6	1.1	-3.9
FEB82	10.9	2.1	1.1	4.5	3.5	-0.5	1.7	-5.2
MAR82	10.4	3.7	3.9	4.8	1.9	-5.1	1.9	-8.6
APR82	10.7	4.2	-15.4	5.7	0.5	-7.1	1.2	-12.4
MAY82	9.2	-0.2	1.7	5.9	0.0	0.2	0.1	-9.0
JUN82	8.4	-1.2	-2.2	6.3	0.0	-0.5	1.5	-3.1
JUL82	8.5	-3.4	-11.3	6.5	-0.9	-5.9	1.5	-1.0
AUG82	8.3	3.5	-6.9	6.8	-2.5	-6.0	2.6	0.0
SEP82	7.8	1.1	-5.4	6.9	-1.1	-7.0	1.7	9.4
OCT82	8.6	0.7	-12.6	6.9	1.6	-6.1	2.8	14.0
NOV82	7.6	-0.2	-4.6	7.3	0.5	-6.3	3.7	7.5
DEC82	7.4	-2.1	-12.1	7.3	0.2	-4.6	2.4	7.8
JAN83	6.9	-2.0	-1.4	7.7	0.0	1.7	2.1	13.5
FEB83	6.4	-2.8	-5.3	7.6	-0.2	-2.8	0.6	16.4
MAR83	6.2	0.3	-9.8	7.4	0.2	-3.2	0.9	10.8
APR83	6.7	-6.4	-2.0	7.6	0.7	-3.7	.	9.0
MAY83	7.1	-2.0	0.6	7.5	2.3	-6.4	.	6.6
JUN83	5.9	2.4	3.5	7.1	3.2	0.2	.	2.1
JUL83	6.9	2.6	8.3	6.7	3.9	3.5	.	0.0
AUG83	6.8	-2.2	10.8	7.3	4.7	3.0	.	0.0
SEP83	6.6	-1.0	11.0	7.5	3.5	2.5	.	-7.6
OCT83	6.1	-0.2	14.3	7.4	3.5	4.3	.	-4.1
NOV83	6.0	1.1	.	7.7	2.8	-0.3	.	3.5
DEC83	5.8	.	.	7.7	2.5	-2.6	.	.

6.4 ALBERTA

It is difficult to find any optimistic forecast for the Alberta economy. Perhaps, the years of smug self-assurance from the "oil patch" now prompt analysts to be especially harsh on the prospect for Alberta. It must always be remembered that this economy still has a vast store of capital, both financial and in the ground, upon which to draw. In large measure the sluggishness of the Alberta economy is a deliberate policy choice not to use this fund to promote industrial policy, job creation and expansion of the public service, which if undertaken, would certainly improve the "numbers."

Also, the value of the capital in the ground can change dramatically in a very short period of time. The nervousness of world spot prices for crude oil, in reaction to news from the Middle East, still clearly demonstrates that the western world has yet to develop a consistent strategy to cope with interruptions in supply.

The core of the economic planning problem for Alberta is how to use the accumulated capital to advantage. Clearly, there is great reluctance to "sell the land" in order to maintain levels of government services.

Although the unemployment rate is very high, (hovering aroung 10.5 to 11 percent), shipments show sustained growth over the last part of 1983. There is also some indication that the slide in real wages may be slowing, which is still some way from saying that consumers have an increasing basis for confidence. Nonetheless, retail trade is making a comeback and contraction in employment seems to have stopped.

While the gloomy predictions of most forecasters still remain in effect, it must be stressed that much of the stagnation in the Alberta economy is probably due to conscious political choice, as much as to international forces working to stabilize oil prices.

TABLE 3

Alberta: Percent Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP-MENTS	UNEMPLOY-MENT RATE	EMPLOY-MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY WAGES & SALARIES	LEADING INDUSTRY EMPLOYMENT: CONSTRUCTION
JAN82	10.7	5.8	3.9	4.8	2.1	-3.7	-0.2	-0.3
FEB82	11.6	5.2	5.5	4.7	1.1	-3.9	0.9	-2.8
MAR82	12.2	6.3	5.2	5.5	2.0	-10.3	1.1	-3.6
APR82	12.5	4.1	-7.5	6.2	-0.7	-9.7	1.3	-17.2
MAY82	12.0	-0.6	-3.5	7.2	-2.3	-8.5	-1.6	-25.5
JUN82	11.2	0.1	-3.9	7.7	-2.1	-10.1	-1.1	-19.9
JUL82	10.7	0.3	-14.1	8.1	-1.7	-12.8	0.7	-20.3
AUG82	10.4	0.4	-3.8	8.5	-2.3	-10.9	1.4	-22.5
SEP82	10.4	-1.3	-9.9	9.2	-2.7	-11.3	1.0	-17.3
OCT82	10.3	-2.1	-14.6	9.4	-2.8	-10.4	0.8	-18.3
NOV82	9.0	-3.7	-8.0	10.2	-3.1	-11.3	1.4	-19.6
DEC82	8.6	-1.7	-11.7	10.6	-2.6	-9.7	2.7	-22.6
JAN83	8.3	-2.9	-8.8	10.1	-3.4	-6.7	2.0	-24.1
FEB83	7.4	-3.4	-6.9	10.1	-3.7	-9.7	0.3	-24.5
MAR83	6.6	-4.3	-6.9	11.0	-4.4	-2.7	0.8	-24.7
APR83	6.9	-6.4	-2.6	10.5	-2.5	-8.6	.	.
MAY83	6.2	-4.7	2.9	10.5	-0.6	-6.4	.	.
JUN83	5.8	-4.4	3.4	11.1	-0.6	-2.2	.	.
JUL83	5.7	-5.1	3.6	11.1	-1.1	0.0	.	.
AUG83	5.3	-5.1	5.6	11.1	-0.5	-2.4	.	.
SEP83	4.7	-4.1	3.8	10.5	-0.1	-0.3	.	.
OCT83	4.2	-5.4	9.3	10.1	0.7	0.0	.	.
NOV83	4.2	-3.5	.	10.5	0.6	-1.3	.	.
DEC83	4.5	.	.	11.0	-0.6	0.2	.	.

6.5 BRITISH COLUMBIA

The recovery of housing markets in the U.S., despite the restraint on demand imposed by vigorous competition from American lumber producers had, until recently, kicked the western-most economy into some semblance of life. The labour dispute in the industry is now very serious, and rapidly undoing the modest gains made earlier. Sustained growth in employment of around 4 percent for the next year will be required to recover the losses of the recession. In part, extreme public sector restraint may accelerate the rate at which unemployment is reduced by exporting the surplus labour force to other parts of Canada, most likely Saskatchewan and Ontario.

The recent decline in real wages and salaries is in large measure explained by wage restraint, and with more layoffs planned in the early part of 1984, retail trade may be compromised. The ripple of layoffs from the labour problems in the forest products industry will also harm retailers.

The basic policy question being field tested in B.C. is whether reduction in the deficit will actually encourage growth, either by reduction in tax burdens, direction of existing debt service commitments into incentive programs to assist industry, or, and this is unlikely, using the improved credit rating to support major capital projects through debt financing. The recent budget announced by the government gives little indication that much planning has been done yet on how reduced government expenditures will be translated into economic prosperity. In short, prospects for B.C. are glum.

TABLE 4

British Columbia: Percent Changes From Same Month Last Year

DATE	CPI	REAL WAGES & SALARIES	SHIP-MENTS	UNEMPLOY-MENT RATE	EMPLOY-MENT	REAL RETAIL TRADE	REAL AVERAGE WEEKLY WAGES & SALARIES	LEADING INDUSTRY EMPLOYMENT: MANUFACTURING
JAN82	13.3	-0.8	-9.3	8.5	-0.6	-8.0	-0.5	-5.2
FEB82	13.0	0.9	-6.7	9.0	-2.0	-8.7	-2.7	-6.6
MAR82	11.4	0.6	-5.2	9.7	-2.0	-12.7	-0.8	-9.4
APR82	11.3	-1.0	-17.8	10.5	-4.3	-12.0	-0.8	-9.5
MAY82	11.9	-4.9	-10.3	11.2	-3.9	-12.3	-2.0	-12.2
JUN82	11.0	-6.1	-15.4	12.6	-6.0	-14.0	-2.2	-16.0
JUL82	10.6	-3.2	-2.1	13.8	-6.7	-11.0	-0.5	9.4
AUG82	10.1	-8.7	25.8	13.9	-6.5	-11.8	0.1	-9.1
SEP82	9.6	-9.9	-7.1	13.6	-7.0	-11.8	-2.3	-17.0
OCT82	8.8	-9.6	-17.7	14.5	-7.1	-10.0	-1.8	-17.9
NOV82	8.2	-8.9	-9.3	14.4	-8.0	-13.3	-0.9	-17.6
DEC82	7.6	-8.4	-9.3	14.7	-7.2	-10.6	2.8	-16.9
JAN83	6.8	-6.1	-0.5	14.2	-6.4	-9.1	1.1	-17.0
FEB83	6.6	-6.6	-0.1	13.8	-4.6	-9.0	0.9	-14.0
MAR83	6.7	-6.2	-5.2	14.0	-3.8	-5.6	1.0	-12.8
APR83	6.5	-6.5	7.0	13.4	-0.6	-6.0	.	.
MAY83	5.1	-2.8	11.0	13.9	-1.7	-4.8	.	.
JUN83	5.1	-2.0	14.6	14.1	0.3	0.2	.	.
JUL83	5.8	-0.2	22.6	13.7	0.9	-1.2	.	.
AUG83	5.2	6.5	12.6	14.1	0.4	-1.0	.	.
SEP83	5.0	1.4	14.2	13.4	1.5	0.4	.	.
OCT83	4.7	-1.9	18.4	13.5	0.0	3.0	.	.
NOV83	4.3	-4.8	.	13.9	0.8	.	.	.
DEC83	4.7	.	.	13.6	2.1	.	.	.

6.6 FORECASTS FOR WESTERN CANADA

The forecasts below reflect our growing optimism about the Manitoba and Saskatchewan economies, some signs of life in Alberta and increasing concern about B.C. The figures in brackets are the December 1983 forecasts. Real GDP has been revised upward everywhere except B.C. Employment growth forecasts remain stable in Saskatchewan and Alberta, are revised up for Manitoba and down for B.C. We expect the unemployment rate to drop more than forecast in December 1983 for Manitoba, and rise in Saskatchewan and markedly in B.C. Consumer prices will remain generally as forecast, although recent interest rate movement will bear watching.

I.S.E.R. Forecasts for 1984
(March 1984)

	Manitoba	Saskatchewan	Alberta	B.C.
Real GDP	3.8 (3.5)[2]	3.9 (3.8)	3.2 (3.1)	3.5 (4.0)
Employment	2.5 (2.1)	2.0 (2.0)	.8 (.8)	1.0 (1.9)
Unemployment[1]	8.5 (9.1)	7.0 (6.2)	9.9	14 (12.9)
Consumer Price Index	6.9	5.4	7.0	6.0

[1] End of year forecast
Remaining figures are annual averages.
[2] Figures in brackets are our December 1983 forecasts.

6
Leading Indicators*

Figure 1

Canada-United States Composite
Leading Indicator

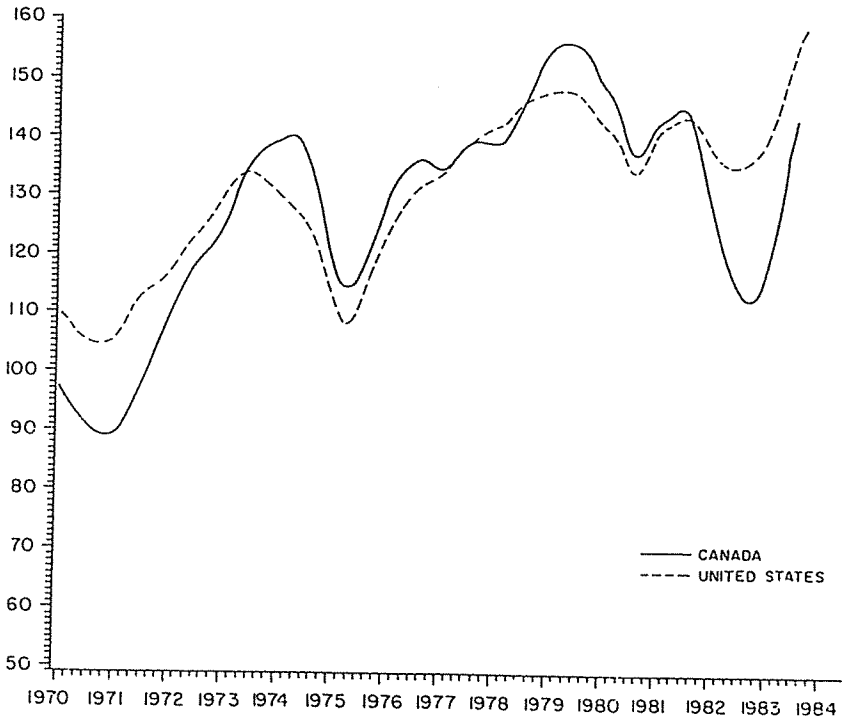

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TABLE 1

Employment and Price, % Change from Previous Quarter and From Same Quarter Last Year

	3 Months	1 Year
Labour Force	0.5 (-0.3)	1.7 (1.5)
Employment	1.3 (0.6)	2.2 (3.1)
Unemployment Rate [1]	11.7 (11.2)	12.1 (12.6)
Real Wages[2]	1.5 (1.5)	-0.6 (-0.6)
CPI	1.6 (0.9)	5.3 (4.7)
Industry Selling Price	0.8 (0.3)	3.4 (3.2)
Exchange Rate	0.1 (0.1)	-1.4 (0.3)

[1] Average rate of unemployment in the last three months and one year before.

[2] First quarter of 1983

(Numbers in brackets are 3 months ending in November 1983.)

Figure 2

Unemployment Rate

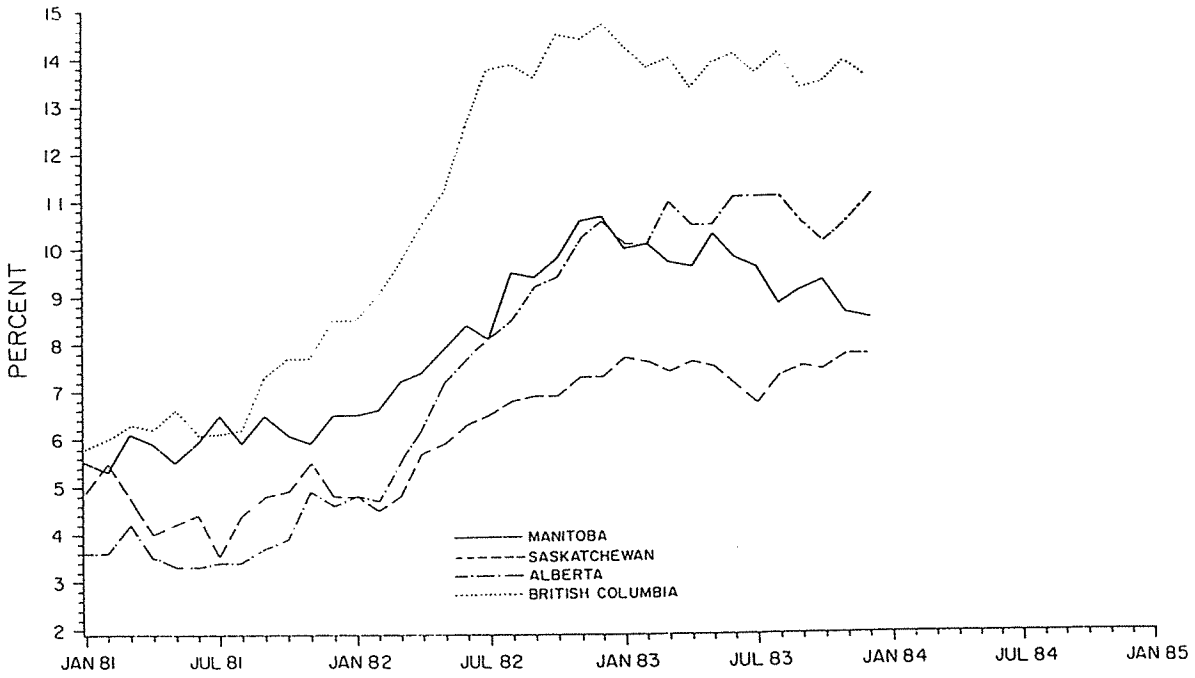


Figure 3

Employment
(Percent Change From Same Time Last Year)

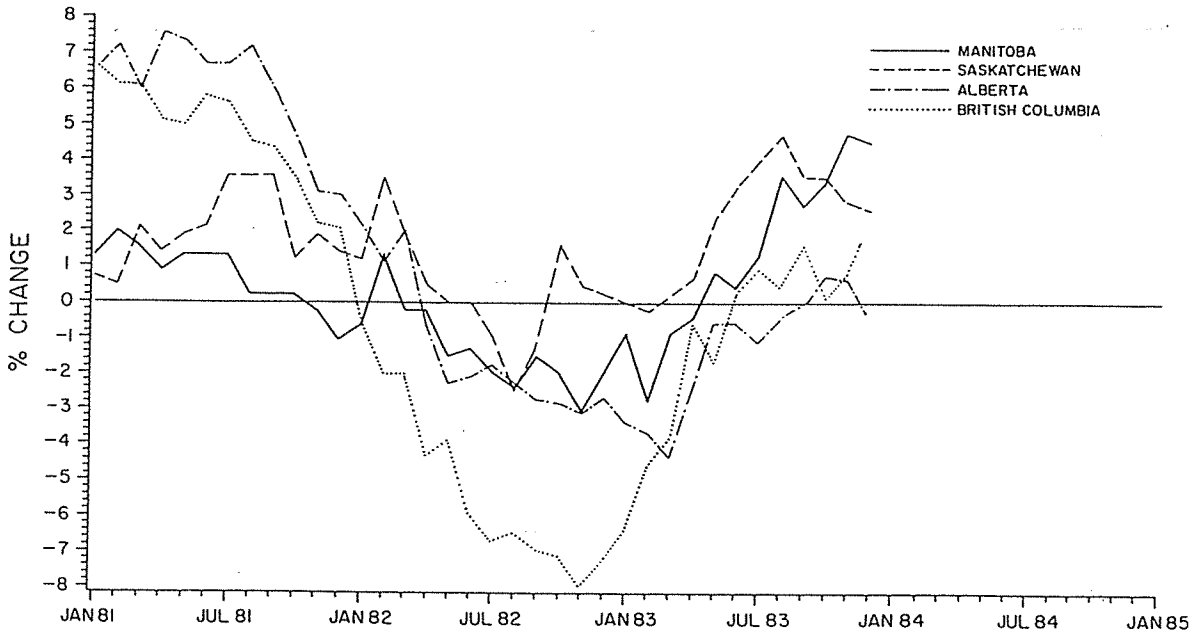


Figure 4

Help Wanted Index
(Quarterly)

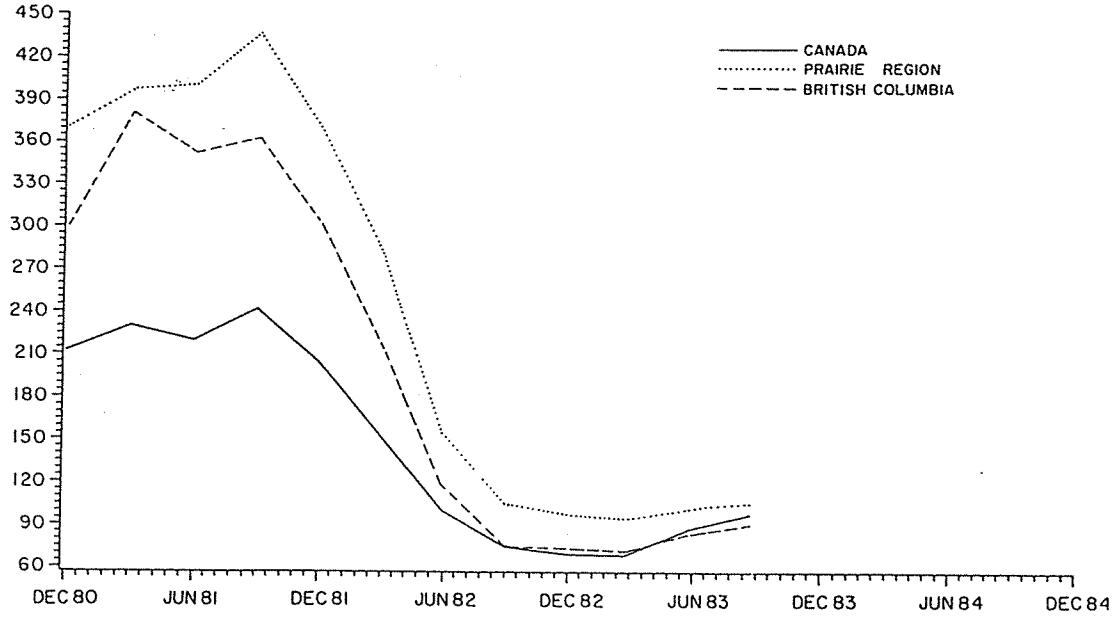


TABLE 2

Employment and Labour Force, % Change From Previous Quarter and From Same Quarter Last Year (Fourth Quarter of 1983)

	Total Employment		Average Unemployment Rate	
	3 Months	1 Year	Last 3 Months	Previous Year
Manitoba	0.9	4.1	8.8	10.4
Saskatchewan	-0.1	2.9	7.6	7.2
Alberta	0.1	0.2	10.5	10.1
B.C.	-1.0	1.0	13.7	14.5
Canada	0.2	-2.9	11.1	12.7

TABLE 3

Prices and Wages, % Change

	Wages and Salaries [1]		Real Average Weekly Wages [2]		CPI [3]	
	3 Months	1 Year	3 Months	1 Year	3 Months	1 Year
Manitoba	1.7	7.2	0.9	0.5		
Winnipeg					0.6	5.0
Saskatchewan	1.9	6.2	-0.1	0.1		
Regina					1.1	6.0
Saskatoon					0.5	5.9
Alberta	-0.1	-0.2	1.8	0.8		
Edmonton					0.4	4.3
Calgary					+0.7	2.7
B.C.	-2.9	+2.8	2.0	0.1		
Vancouver					0.5	4.6
Canada	-5.6	0.5	1.5	-0.6	0.9	4.6

[1] Three last months ending in November.
[2] First Quarter of 1983.
[3] Fourth Quarter of 1983.

Figure 5

Consumer Price Index
(Percent Change From Same Month Last Year)

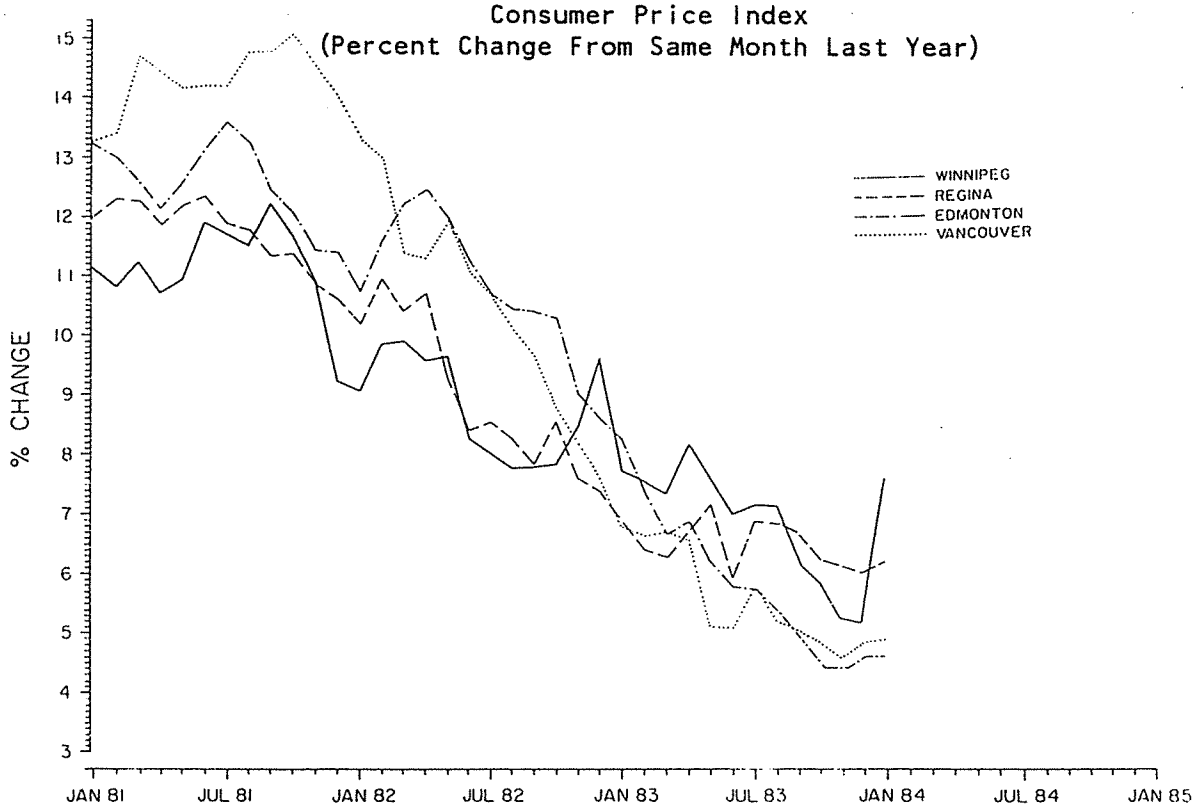
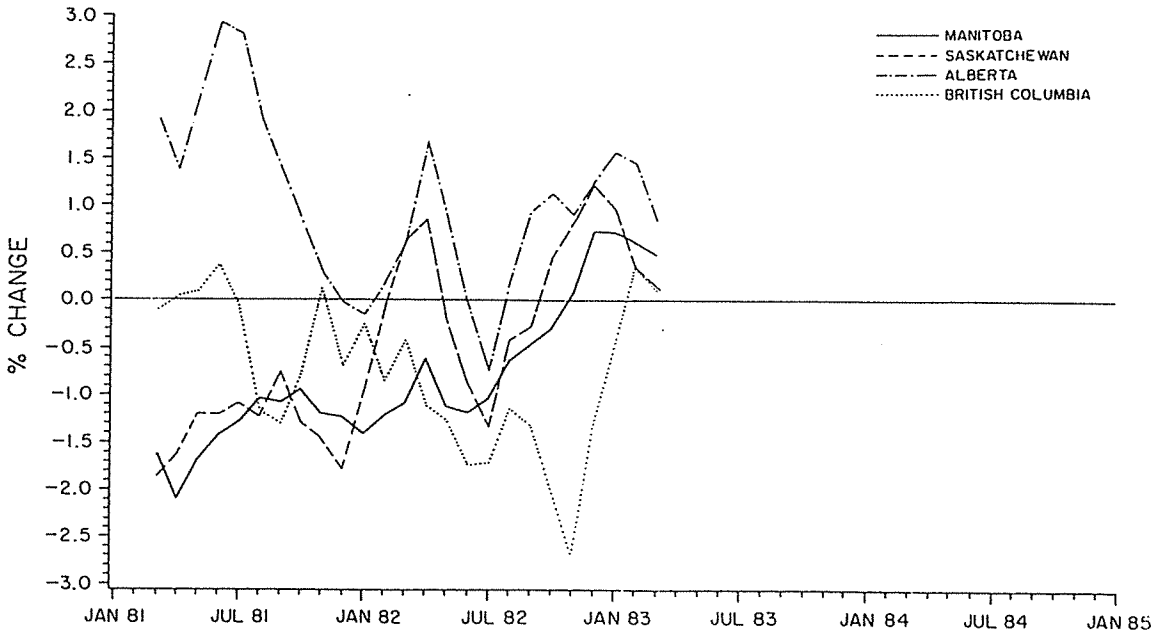


Figure 6

Average Weekly Salaries (Real)



Note: Three month moving average, series deleted.
New series to appear Vol.3, No.2.

TABLE 4

Measures of Activity, % Change From Previous Quarter and From Same Quarter Last Year (Fourth Quarter of 1983)

	Leading Industry Employment[1]		Shipments[2]		Retail Sales		Housing Starts	
	3 Months	1 Year	3 Months	1 Year	3 Months	1 Year	3 Months	1 Year
Manitoba	-0.4	-12.2	-1.5	0.6	3.1	11.4	-25.0	500.0
Saskatchewan	-6.0	13.6	1.3	12.0	-0.8	6.4	-54.5	-16.7
Alberta	-8.3	-24.4	1.5	6.2	1.0	3.9	-43.5	-40.9
B.C.	-0.7	-14.6	-7.4	15.0	0.4	5.6	-47.2	46.2
Canada	0.2	- 2.9	2.6	12.2	2.7	10.2	-40.7	36.5

[1] Manufacturing (including sawmills and pulp and paper) in Manitoba and B.C., construction in Alberta, agriculture in Saskatchewan, total employment in Canada. [2] Three months ending in October 1983.

Figure 7

Capacity Utilization in Manufacturing
(Percent)

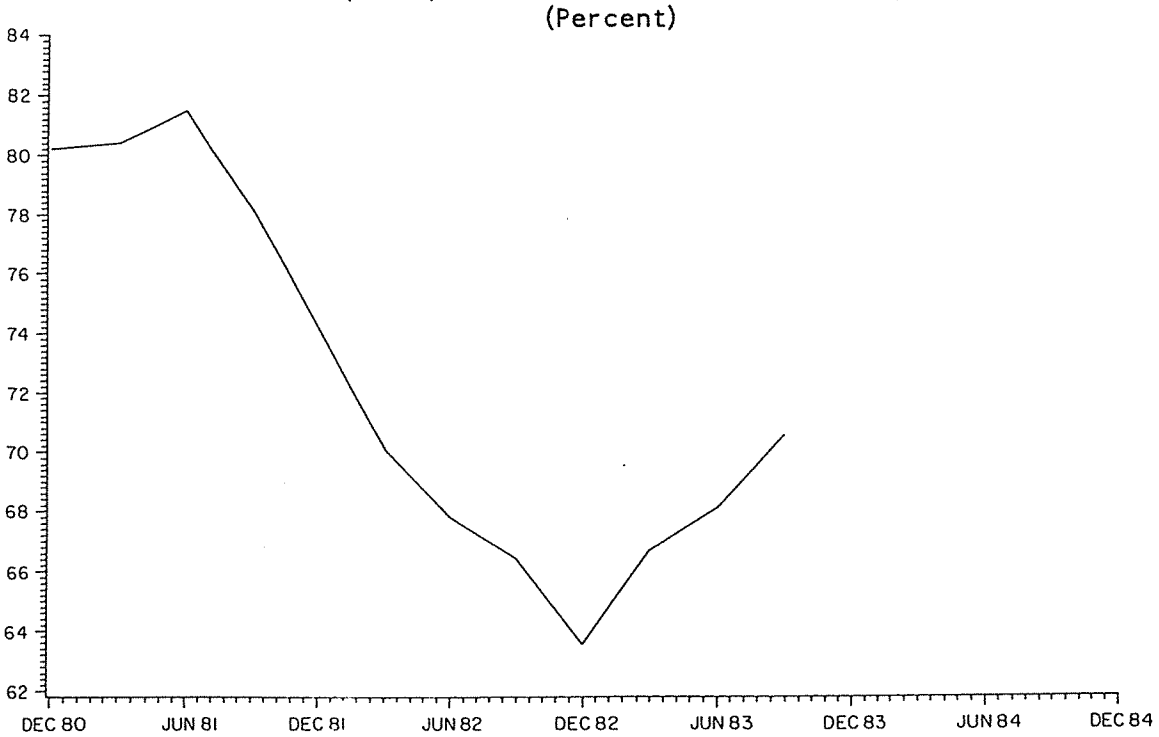
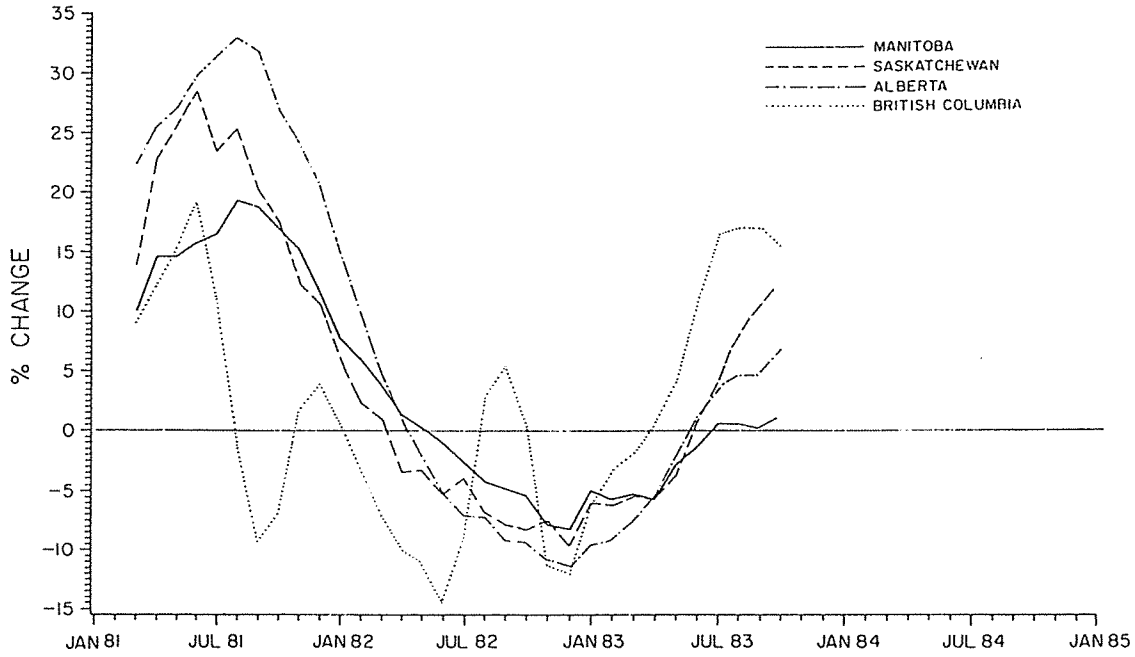


Figure 8

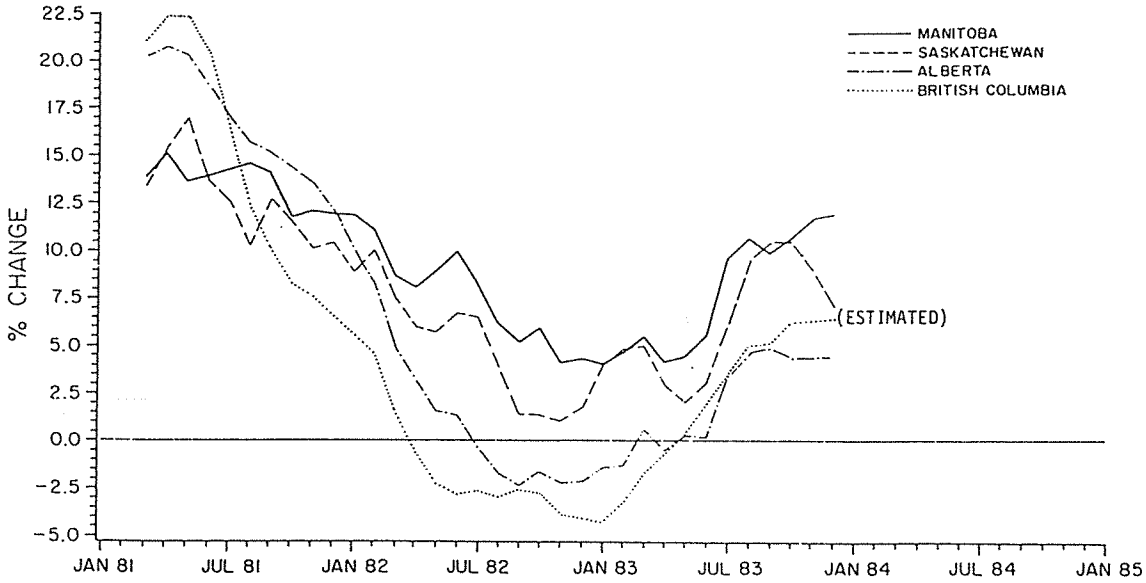
Shipments (Manufacturing)
(Percent Change Same Month Last Year)



Note: Three month moving average.

Figure 9

Retail Trade
(Percent Change Same Month Last Year)



Note: Three month moving average.

Figure 10

Wheat Board Price
(Cents/Bushel)

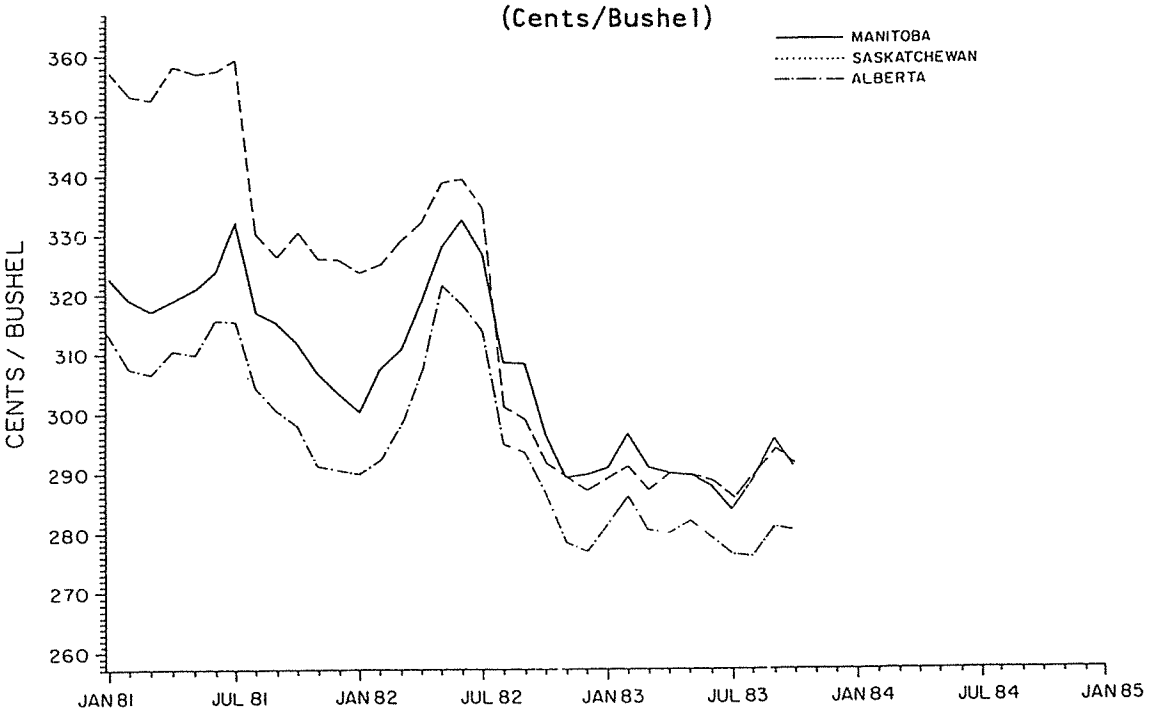


Figure 11

Farm Cash Receipts

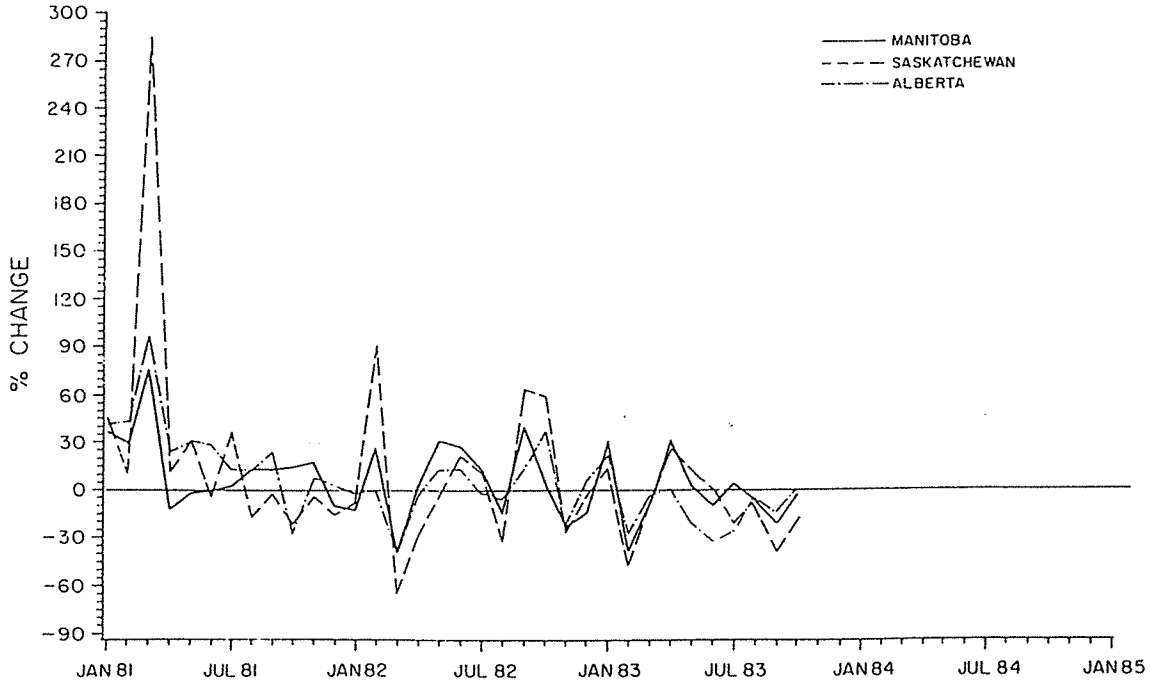


TABLE 5

Gross National Expenditure, % Change From Previous Quarter and From Same Quarter Last Year (Third Quarter of 1983)

	3 Months	1 Year
Private Consumption	1.0	3.8
Public Consumption	0.7	0.2
Public Investment	0.3	3.8
Residential Construction	-5.1	42.7
Non-Residential Construction	-2.4	-8.0
Private Investment	4.1	3.2
Change in Stocks (% of GNE)*	0.7	-2.5
Exports	2.0	2.6
Imports	5.4	10.6
G.N.E.	2.0	4.8
Current Balance (% of Current GNE)*	-0.2	1.2

* Last quarter and same quarter the year before.

Note

* All data presented here were extracted from the CANSIM, University Base and processed using the Statistical Analysis System.

7
Book Reviews

Government-wide Audit on Program Evaluation, Auditor General of Canada, 1984, (112 pp.)

The federal Liberal administration is frequently singled out as having prime responsibility for the dramatic growth in expenditures, deficits and the public debt. Much editorial energy is spent in castigating the federal government for spendthrift ways, with only the occasional and grudging admission that major forces in this growth were the politically popular indexation of income taxes (which reduced the rate of growth in revenues) and recessions which automatically called forth higher payments, especially in social assistance and unemployment insurance.

Comparatively little recognition has been given the federal government for a systematic program of reviewing departmental expenditures according to some rational framework. The only popular piece which readily comes to mind is an article of about a year ago by George Bain in Saturday Night.

Insiders tend to be somewhat cynical about the recent history of program evaluation and point to the dramatic growth in expenditures on program evaluation as evidence to support the notion that this effort is an elaborate ruse by politicians to convince the public that something is being done to control expenditures.

This report, in effect an audit of the audit function, is a valuable adjunct to the much more publicized Auditor General's report which is gleefully quoted in the media. The annual chronicle of fiscal peccadillos, usually quoted out of context, is always taken as evidence that politicians and public servants are grossly negligent. Unfortunately, we never have access to the similar fiascos committed by the private sector except in truly egregious errors such as the Edsel. Private sector financial misjudgement is never so harshly judged as mistakes in the public sector; indeed if this mismanagement is skillfully handled the business firm will often qualify for significant government assistance.

The government-wide audit on program evaluation emerged as a result of the 1978 Auditor General's report which noted that few departments had successfully implemented systematic review of spending, and those which had were haphazard or incomplete in

their reporting. The report begins with a schematic of the evolution of the program evaluation function, and is reproduced below. One may be struck with the comparatively long period of time to implement monitoring procedures, but it is important to stress that the provision of public goods and services is inherently more difficult than selling cars. In most private markets, if a product is unwanted by the consumer, judgment can be swift and unequivocal. In the provision of "soft" services, such as immigrant assistance programs, assessment of efficiency and effectiveness is clearly more difficult.

Another reason for the apparently protracted gestation period to produce a systematic evaluation framework is that government decisions are never, and will never be, based solely on objective criteria. Political decisions and judgments interweave with more measurable fiscal objectives to produce a complex weave of power brokering. It was inevitable that the energetic actions of Canada's most influential auditor to date, James MacDonnell, would produce strenuous opposition from senior civil servants who frequently resented intrusions into the functioning of their departments. This reaction is not venal, it is human.

The objective of the exercise reported in this document is to trace the evaluation activities of 19 major departments which had undertaken evaluation activities during the past five years (1978-83). It reports on a systematic evaluation of the evaluation process. In a very informal sense, this review is an evaluation of the evaluation.

After introducing the basic concepts of federal evaluation history in practice in the first two chapters (which in itself is a useful summary), the report outlines the criteria whereby the evaluation activities of these departments are to be considered.

The third chapter concentrates upon how successfully various departments have implemented stages in the evaluation process. For example, it was discovered that departments generally have failed to undertake adequate evaluation assessments. This initial stage of an evaluation attempts to identify the various methodologies that may be applied to the appraisal of efficiency and effectiveness. Typically, the study team found that these preliminary assessments failed to detail the evaluation options, provide complete descriptions of the indicators of efficiency and effectiveness, and did not specify the data required. This appears a strong condemnation of the process, and the report fails to even speculate on why this might be the case.

There are important structural reasons why evaluation assessment planning is inadequate. It is quite common practice to utilize outside consultants in the evaluation function - laudable, since it seems to assure greater objectivity. However, consultants who bid on creating an evaluation assessment plan, must tread a very fine line. Even in the proposal, it is natural to be relatively sketchy about how the ultimate evaluation would be done, simply to avoid providing too much information given the cost of the work. As cited in the report, the median cost of evaluation assessment done by private consultants was $15,000 - a modest sum. It is inevitable that consultants would retreat from a completely detailed evaluation assessment for fear of providing so much detail that the next stage, the evaluation itself, would be internalized by government and lost to the firm.

Figure 1

CHRONOLOGY OF KEY EVENTS IN THE DEVELOPMENT OF FEDERAL PROGRAM EVALUATION

Late 1960s - Early 1970s		Departments and agencies were to establish Planning and Evaluation units.
1974	-	Treasury Board Study on Planning and Evaluation finds that "most departments had not attempted to organize the program evaluation function...even though man-years and in many cases executive resources had been allocated to departments for this function."
1976	-	Treasury Board Study of Departmental Evaluation Activity concludes that "little headway has been made in the evaluation function...across the federal government."
1977	-	Treasury Board Policy Circular on Program Evaluation (TB1977-47).
1978	-	Annual Report of the Auditor General - Study of Procedures in Cost Effectiveness finds few successful program evaluations in the federal government.
	-	Office of the Comptroller General created and assigned responsibility for the program evaluation function.
1980	-	Public Accounts Committee issues a report and endorses five basic criteria for auditing the evaluation of program effectiveness.
	-	Office of the Comptroller General circulates its policy framework for program evaluation in draft form, and begins liaison with major departments on program evaluation.
	-	Program evaluation function linked to the Policy and Expenditure Management System.
1981	-	Office of the Comptroller General issues Guide on the Program Evaluation Function, and Principles for the Evaluation of Programs.

Source: Government-wide Audit on Program Evaluation.

The very process of submitting a bid to prepare an evaluation assessment is tricky, for one wishes to demonstrate knowledge and competency without compromising in awarding the contract to anyone in the private sector. The evaluation industry is still very immature, with considerable uncertainty about professional standards, and not infrequently with suspicion that the government is fishing for free advice. It is therefore not surprising that evaluation assessments are inadequate, even in light of the difficulty of appraising the value of public goods and services.

Utilization of evaluations is currently the number one issue in evaluation research (just ahead of seminars on how to tell your deputy minister, and still retain your job, that a favoured program is a mess!). The first stage in utilization must be that the evaluation is transmitted to someone in authority, usually the Minister. In this audit there were "few instances where evaluations had been reported to the Minister." Some progress is evident since the emergent policy in one or two departments is to have all evaluations reported to the Minister, but these are the exception.

Another possible destination for an evaluation is to the Policy and Expenditure Management System, primarily through strategic overviews. Again the frequency is low with which evaluations found their way into this cabinet level forum, or Cabinet Committee Secretariats. This aspect of the audit concludes somewhat tersely that "government policy leaves to the department the decision of whether to transmit evaluations to policy secretariats.

With respect to the usefulness of evaluations, the audit concluded that in about half of the studies some or all of the recommendations had been accepted. It was likely that the evaluation recommended that the program be expanded, usually to new constituencies. This tends to counter the common perception that evaluations are, or ought to be, the first step in rationalization. If anything, evaluations seem to call for more activity, not less. Perhaps this is why current public sector rationalization seems to stress political considerations, rather than systematic reviews of efficiency or effectiveness.

In general, with respect to utilization, the audit found that despite popular perceptions, these efforts have had some effect, although not at the highest level. Many programs have responded to recommendations and incorporated adjustments based upon these reviews.

In the fifth section, the audit considers the extent of interdepartmental activities and the effect these have upon the evaluation. Just as assessing performance in jointly authored reports, evaluation is problematic of interdepartmental activities in areas where jurisdiction abutts or overlaps. For example in grain transport, Transport, Department of Regional Industrial Expansion, and Agriculture are all involved. Not surprisingly, the evaluation of these activities is much less well done than when a single department has unique responsibility for delivery, however the audit does not advance systematic procedures for these environments. Given the magnitude of expenditures in interdepartmental activities this is a major "loophole" in the current evaluation program of the federal government.

In conclusion the report states that since 1978, "very real" progress has been made. Most of the major departments and many of the agencies have in place the basic infrastructure for evaluations. A major problem remains the lack of

adequately trained staff. Apparently the management consulting industry and chartered accountant firms, by merely tacking on the term "program evaluation" to their shingles, have not filled the void.

This report is interesting. In a concise format it presents a useful overview of federal program evaluation activities. However, it is frustrating not to be able to read the "raw" data, as the vast majority of evaluations are confidential. This will likely remain so despite freedom of information. It seems evident that the form is in place, even if the content leaves much to be desired. The proliferation of special offices and directors of evaluation throughout the federal system certainly gives the appearance of commitment. It is easy to be cynical, especially since overt violations of rationality abound, but credit must be given for a serious and concerted attempt to cope with the complex task of assessing the degree to which public goods may be offered. It is a pity that so few comprehend the complexity of the task or the progress made to date. This volume and the references cited are important reading for those who smugly assert that government should be run on sound business principles.

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

Report of the Manitoba Task Force on Social Assistance, Government of Manitoba, September 1983. (165 pp.)

In The Emergence of Social Security in Canada, Dennis Guest argues that the history of social security can be characterized as the movement from a residual to an institutional view of the role of social welfare measures, the establishment and continual redefinition of social minimums, the redefinition of the causes of poverty as primarily structural rather than personal in nature and the growth in participatory citizenship. While much progress has occurred, in particular areas like social assistance legislation and programs, the residual mean-spirited, blame-the-victim philosophy still holds sway. Against this historical backdrop, the Report of the Manitoba Task Force on Social Assistance can be viewed as a principled attempt to put an end to the last vestiges of such a philosophy by refashioning the administration of social assistance into a comprehensive, non-stigmatizing system of income security for both the working and non-working poor.

It was commissioned by the Manitoba Government in May, 1982, with fairly narrow terms of reference aimed at tidying up inconsistencies in the administration of social assistance. To its credit, the Task Force, from the outset, decided to set forth the philosophical stance by which its review would be guided and, in so doing, agreed to interpret its terms of reference broadly.

The result is a document, released in October, 1983, which begins with a description of the defining characteristics of the traditional approach to social

assistance, evaluates the current system in place in Manitoba in the light of that description and then, by way of contrast and counterpoint, builds its own alternative vision of how a revised system should operate.

The essence of its critique of the traditional approach to social assistance is that the particular rules and procedures, elaborated to discourage reliance on social assistance and to promote individual initiative and self-reliance, are self-defeating. The Report suggests that - by insisting that an applicant exhaust practically all other means of support before becoming eligible for social assistance; by "deeming" income sources from assets and other family members which, in fact, may not accrue to the recipient; by maintaining benefits at levels too low to cover special needs on a non-discretionary basis, through inadequate connection to education and employment training programs; by vesting considerable discretion over initial eligibility and benefit levels with case workers; and, by setting very high benefit reduction rates on earned income - the current system locks recipients into long-term and deeply rooted dependency. As well as these deficiencies, it finds considerable inequities in the level of benefits across the province and across the provincial and municipal jurisdictions. The appeal process, although in place and quite prompt in dealing with appeals, is not always well known to recipients and the appeal committee appears not to use procedures which reflect fairness and impartiality.

By way of contrast, the Task Force recommends that:

> The social allowance system should be administered as an automated, simplified benefit system to those who, for whatever reason, do not have the capacity to meet the cost of basic necessities. It should be largely non-discretionary in character. It should be noncategorical in its determination of eligibility. It should be adequate in amount, keeping in mind the urgent requirement that it must permit the meeting of normal need in a normal way. It should encourage people to economize and to plan expenditures in that it would hold them responsible for the consequences of their money management. It should include a benefit reduction schedule which would permit people to have significant increases in income if they work and a system of enrollment which permits easy passage to and from the program for those who are intermittently employed. It should be delivered on a province-wide basis under provincial administration in a single tier. It should co-exist and have active working relationships with a broad network of high quality services to permit education, training, counselling, work preparation and job-finding. It should be based on an information and computerized file system which permits ease of case management, quality control, planning and evaluation. It should provide an easily accessible appeal procedure which ensures administrative fairness and natural justice. It should seek to maintain federal cost-sharing via the Canada Assistance Plan through ongoing negotiation and creative program design (p. 93).

Taken together, these reforms constitute a radical reorientation of the current system of social

assistance. They aim at upgrading the treatment of social assistance recipients, and the perception of the income they receive, to the same level of deservingness as those receiving pensions or unemployment insurance. They would have the effect of implementing a single-tiered system of income support and supplementation for the working and non-working poor, whose incomes fall below the break-even point defined by the basic welfare rates and their proposed 50 percent benefit-reduction rate. With such an income floor in place for all low-income individuals and families, the Province could look at consolidating its several non-cost-shared income supplementation programs (CRISP, SAFER, SAFFR, MSE) into this one umbrella program and, thereby, avoid the stacking of marginal tax rates which currently exist.

Because of the cost implications and the Province's overwhelming concern with its debt, very few of the Task Force's recommendations will be implemented. However, this author would hope that the Province will commit itself to a step-wise implementation of these reforms beginning with those aimed at improving the equity and efficiency of the system. Increasing the work-incentive feature and enhancing system linkages with educational and employment-training programs would be next steps. Then, as provincial revenues permit, the extension of benefits to the working poor and the raising of the basic benefit levels would follow.

Harvey Stevens, Senior Research Associate, Social Planning Council of Winnipeg.

8
Glossary

BENEFIT REDUCTION (RATE)

Most welfare assistance plans stipulate that earned income above the level of public support is to be taxed. In essence there is a benefit reduction which increases steadily until the earned income disqualifies the individual for any assistance at all.

ECONOMETRIC MODEL

A set of mathematical equations, which are estimated statistically (using regression methods; see Vol.2, No.3 for a discussion). Most econometric models have several equations expressing different facets of economic activity such as investment and consumer behaviour. Econometric models are typically used for forecasting and policy impact analysis.

ELASTICITY

Elasticity is a simple mathematical expression dealing with percentage changes which is a basic concept in microeconomics. In the case of prices, the price elasticity demand refers to the consumer response to a one percent change (say reduction) in price. If quantity sold rises by more than one percent, the good is said to have an elastic demand. For less than one percent response in quantity sold the demand is said to be inelastic.

EQUALIZATION PAYMENT

In an effort to ensure equal access to basic social and human services (health, education and welfare), the federal government makes payment to "have not" provinces to "equalize" tax bases. It is not a direct transfer from the "have" to the "have not" provinces since no direct charge is levied against the rich provinces. A measure of "average" to per capita tax base is used to assign "points" to each province and these are used to make the allocation.

GROSS DOMESTIC PRODUCT

Closely related to Gross National Product, Gross Domestic Product (GDP) measures the total values (at market prices) of goods and services produced in a country, net of any imports or exports.

INCOME EFFECTS

The fall in price of a good or service provokes two responses, namely income effect and substitution. The income effect arises because after the price decreases, the consumer has more disposable income which may (or may not) be used to buy more of the goods in question. While substitution effects always produce a reaction to buy more of the cheaper goods, income effects may go either way. The net result may be that more or less of the commodity is purchased after a price reduction. In the case of wages, a wage increase causes people to work more (i.e., the return to work has risen) or to work less (less income is needed to survive). What actually happens is an empirical question.

INPUT-OUTPUT MODEL

A mathematical expression, developed by Wassily Leontief, . in which the buying/selling relationships within an economy are shown. A matrix (rectangular array of numbers) is used to relate the sales from one industry to all others. In this way a one dollar increase in purchases by industry A can be allocated to all those other industries that typically make purchases from A. This model assumes fixed prices for all firms, and fixed technology, which implies that the model needs constant up-dating.

INPUT-OUTPUT MODEL (TABLE)

A mathematical procedure which can be traced back to the eighteenth century economist, Quesnay. An input-output table shows the purchases by and sales to each sector in the economy. It is perhaps the most useful conceptual and pragmatic planning tool in regional economies.

SUBSTITUTION EFFECT

Any price change (including wages and the price of labour) produces two effects; a substitution effect and income effect. The substitution effect changes the composition of what is purchased. For example, a reduction in the price of oranges will lead most to substitute oranges for apples (or other fruit). In all cases, substitution effects are such as to produce an increased purchase of the new lower priced goods (see income effects). However, income effects may be such as to counter this, and the ultimate effect may be that as price falls, less, not more, of the goods may be purchased. Goods in these somewhat rare instances are then termed "inferior goods."

UNIT LABOUR COST

The unit labour cost measures the labour cost of providing one unit of output, which is the inverse of labour productivity.

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Except where noted, all tables, charts and figures are produced by the Computer Assisted Socio-Economic Data Base (CASED) extracting time-series from the CANSIM University Base (Statistics Canada). The Statistical Analysis System (SAS) is also used to prepare the basic tables and graphs.

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For More Information, Please Contact:

Institute for Social and Economic Research
University of Manitoba
300 Fletcher Argue Building
Winnipeg, Manitoba
R3T 2N2
Telephone: (204) 474-9422