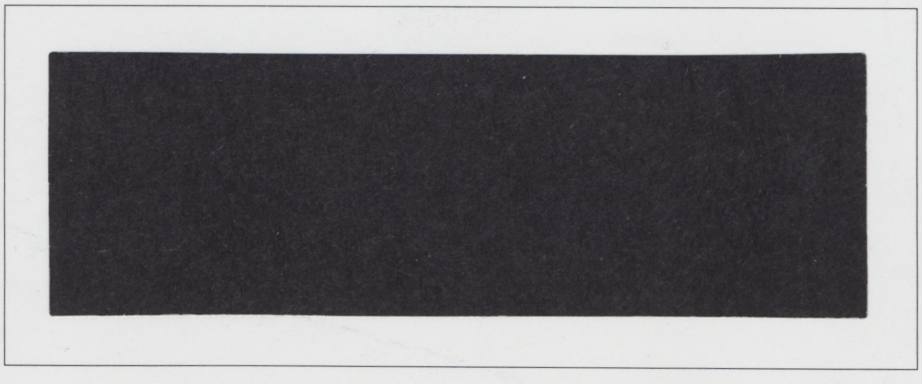
Agriculture Canada

Policy Branch

Grains and Oilseeds Branch



WORKING PAPER

Canada

SUMMARY OF REGIONAL IMPACTS OF COMPENSATORY FREIGHT RATES FOR PRAIRIE GRAIN

(Working Paper 4/91)

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PREFACE

This document summarizes the results of a study commissioned by Agriculture Canada on regional economic impacts of compensatory freight rates for prairie grains and oilseeds.

An Advisory Committee consisting of Douglas D. Hedley, H. Bruce Huff, Zuhair A. Hassan, Jeff Corman, James Atcheson, Malcolm Cairns, Bruce Kirk, Roger Eyvindson, Brian Paddock, Elizabeth Riach, Howard Migie, Richard Barichello and Robert Romaine helped set the bounds for the study.

A detailed description of the study can be found in Klein, K.K., G. Fox, W.A. Kerr, S.N. Kulshreshtha and B. Stennes. 1990. Regional Implications of Compensatory Freight Rates for Prairie Grains and Oilseeds. Policy and Grains and Oilseeds Branches, Agriculture Canada, Ottawa.

A complete review of previous studies of freight rate issues in western Canada can be found in: Kerr, W.A., G. Fox, J.E. Hobbs and K.K. Klein. 1990. A Review of Studies on Western Canadian Transportation Policies. Policy and Grains and Oilseeds Branches, Agriculture Canada, Ottawa.

BACKGROUND

Transportation of grains from the prairie region has a long history of regulation in Canada. In 1897, the government of Canada signed the Crow's Nest Pass Agreement with the Canadian Pacific Railway (CPR). Initially designed as an incentive for growth of the western Canadian agricultural industry, the statutory freight rates have in recent years been accused of inhibiting economic growth and diversification in the region. Since producers of export grains on the prairies are not required to pay the full costs of transporting their products to export locations, the on-farm price of these grains is higher than it otherwise would. Livestock producers in western Canada have to pay higher prices for one of their most important inputs (feed grains). This leads to lower livestock production in those provinces which, in turn, discourages grain-based value-added economic activities like feed processing, livestock trucking and meat processing.

Critics of the statutory freight rates for grain have also argued that the lower rates do not really increase net incomes of prairie grain producers. They contend that the value of the subsidized freight rates has been capitalized into the value of land, giving a capital gain to landowners, resulting in higher capital requirements for beginning farmers. Nonetheless, they worry that higher freight rates would result in large capital losses for existing farmers.

In November, 1983, the Western Grain Transportation Act (WGTA) was passed by Parliament. This Act institutionalized the payment of a Crow Benefit (initially calculated at $658 M, but after adjustments for inflation was $720 M in 1989-90) to the railways. The main effect of the WGTA was to provide sufficient funds for the railways to ensure that the grain transportation system did not deteriorate. Payment of the Crow Benefit directly to the railways had the effect of keeping farm level transportation costs for prairie grain at a relatively low level. However, provision was made for the percentage of total freight costs paid by the

producers to gradually increase over the years. In 1989-90, producers paid approximately 30 percent of the total costs of moving their grain to export locations.

The issue of freight rates for grains and oilseeds produced in the prairies has been included in a general review being undertaken of agricultural policies in Canada. The purpose of this study is to estimate the economic impacts of a number of policy options open to the federal government regarding the transportation of prairie grains to export locations.

THE ISSUE

The issue is what to do with the WGTA. Two possible answers are:

1) Keep the status quo. This position is taken by many grain producers in western Canada, the Saskatchewan Wheat Pool and the Union de Producteurs Agricole (the umbrella farm organization in Quebec). It is not entirely correct to characterize the status quo as locking in the existing price distortion indefinitely. Under the provisions of the WGTA, the producer's share of rail transportation costs would increase over time, though the federal government would be obliged to pay the Crow Benefit to the railways indefinitely. Provincial governments in the prairie provinces have responded to the resulting higher farm level prices of feed grains by implementing offsetting subsidies to users of feed grains.

2) Make producers pay full compensatory rates. Livestock organizations and many grain producers' organizations in western Canada support this position. They claim it would reduce feed grain prices in western Canada, thereby encouraging expansion of the livestock industry and associated value-added industries in western Canada. However, lower farm level prices for grains and oilseeds would reduce the value of land in western Canada. Since most agricultural producers in western Canada own part or all of the land that they farm, this would erode the equity base of existing farmers.

If a decision is made to implement compensatory rates for transportation of grains and oilseeds, a second important issue emerges: should producers be compensated for loss of the transportation subsidy? With no compensation by government, many existing producers may experience considerable financial difficulties. However, if compensation is paid, the method used to compensate

farmers could have differential impacts on western Canadian crop and livestock production patterns, farm incomes, land values and growth of related industries.

THE OPTIONS

Five policy options for paying for the transportation and handling of prairie grains and oilseeds were evaluated in the study:

1. Crow Offset Programs in All Prairie Provinces
2. Full Rates, No Compensation, No Efficiency Gains
3. The Agricultural Diversification Alliance Proposal
4. The Gilson Proposal
5. The St. Lawrence Pool With Either WGTA or Full Rates

Results from these five options were compared to a base situation which consists of 1989 prices and costs of production, average 1982-89 yields and Crow Offset Programs in Alberta. Although Saskatchewan and Manitoba introduced Crow Offset Programs in late 1989, they were not included in the base since they would have had little or no influence on producers decisions during 1989. Crow Offset Programs in all prairie provinces are considered in Option 1.

Option 1. Crow Offset Programs in All Prairie Provinces

The Alberta government began offering subsidies to livestock feeders in 1985 as a way of offsetting the perceived damage to the provincial livestock economy caused by the subsidized freight rates for grains. The initial program, called the Alberta Feedgrain Market Adjustment Program (AFGMAP) offered subsidies of $21/t for grain used for livestock feeding. This was the approximate difference between the WGTA rates charged grain producers for shipping grain to terminal locations and the full rates of shipping grain.

On July 1, 1987, the Alberta Crow Benefit Offset Program replaced the AFGMAP. The level of subsidy was reduced - first to $13/t for the 1987-88 and 1988-89 crop years, then to $11/t for the 1989-90 crop year and then to $10/t for the 1990-91 crop year. This was done partly in response to budgetary pressures that had been developing in Alberta, but also due to recognition that the level of hurt in the livestock industry that was caused by the subsidized freight rates was smaller than the difference between WGTA and full compensatory freight rates. Part of the difference between these two levels of freight rates was being absorbed in the market.

In mid 1989, the Saskatchewan and Manitoba governments announced that they too would offer a Crow Offset Program to livestock producers in their provinces. Since September 1, 1989, Saskatchewan livestock producers have been receiving approximately $13/t for each tonne of feed grain used to feed cattle and hogs in the feedlot. Manitoba restricted its program to slaughter cattle only. They agreed to provide Manitoba feedlot operators $9/t on grain fed to slaughter cattle.

The first option analyzed in this study compares the expected long run patterns of production and income with Crow Offset Programs in all prairie provinces against the base in which only Alberta had a Crow Offset Program.

Option 2. Full Rates, No Compensation, No Efficiency Gains

The second option in this study was analyzed under the assumption that the present freight rate structure, based on distance related costs of transportation, as determined by the National Transportation Agency, would be retained, but producers would be required to pay full compensatory rates to transport grain and oilseeds to terminal locations. It was assumed that no efficiencies would occur in the handling and transporting

of grains and oilseeds. Farm level grain prices would decrease by the full amount of the difference in freight rates.

In this option, producers receive no compensation for loss of the Crow Benefit.

It was also assumed in this option that Crow Offset Programs in all prairie provinces would be removed. Even though implementation of this policy option may require a phase-in period of freight rate increases, only the long run, fully adjusted situation is analyzed.

Option 3. The Agricultural Diversification Alliance Proposal

The Agricultural Diversification Alliance proposed that producers pay full compensatory rates for transporting grain from western Canada. Producers would be compensated for loss of the Crow Benefit subsidy with an annuity. Compensation would be based on the capitalized value of the Crow Benefit over the next 25 years and paid out over a 15-year period. Individual entitlement to compensation would be determined using either 100 percent of historical shipments of eligible grains or 80 percent of calculated potential production of eligible grains, whichever is higher.

This method of compensation is designed to be production neutral and is analyzed in this way. Patterns of grain and oilseed production in western Canada should be close to the same regardless of whether or not producers receive compensation. Of course, the producers' financial situations would be seriously affected if they did not receive compensation.

In this option, it was assumed that sufficient savings would be generated from imposition of full compensatory rates and additional regulatory changes in the grain handling and transportation system that the

negotiated future rate structure would reflect decreased real costs of 1.5 percent per year for a ten year time period. This amounts to a reduction in real costs of grain transportation of 14.1 percent after ten years.

With full compensatory rates, grain handling companies would also have an incentive to increase the efficiency of handling grain. It was assumed in the study that, over a ten year period, real costs of operating the average primary elevators in western Canada would decrease by 1.2 percent per year. This amounts to a reduction in real costs of grain handling of 12.5 percent after ten years. These projected reductions in real costs of transporting and handling grain would mitigate part of the decrease in farm level prices of grains and oilseeds if producers were to face full compensatory rates.

Option 4. The Gilson Proposal

Gilson proposed that the federal government pay the 1982 grain transportation revenue shortfall (defined as the difference between the Crow and full compensatory rates) in perpetuity, as well as pay half of the inflationary cost increases for grain transportation above three percent and all of the inflationary cost increases over six percent. The payment would initially go entirely to the railways, but over time less of the payment would go to railways and more would go directly to producers. After an eight-year period, 81 percent would be paid directly to producers and 19 percent would be paid to the railways. The initial level of the Crow Benefit was calculated by Gilson to be $640 M in 1982.

The Gilson proposal called for the payment to producers to be made on the basis of their cultivated acreage, adjusted for productivity. This compensation would be paid every year for the foreseeable future.

The fourth option analyzed in this study was a slight modification of the original Gilson proposal. Producers would receive, in perpetuity, 81 percent of the 1989-90 Crow Benefit of $720 M; railways would receive the other 19 percent. It was assumed that productivity gains of 14.1 percent for railway transportation and 12.5 percent for improvements in grain handling efficiency would occur over a ten-year period. These productivity improvements would absorb part of the increase in grain handling and transportation costs.

Option 5. The St. Lawrence Pool Option

When western Canadian grain producers sell wheat or barley to the Canadian Wheat Board (CWB), they receive an initial payment for their grain. The initial price for each grade of these grains has been established as in-store Thunder Bay or in-store Vancouver. Farm level initial prices for a specific grade of these grains vary by the amount of the freight rate to the nearest port (Thunder Bay or Vancouver) from the local elevator. All costs incurred by the Canadian Wheat Board in the selling of these grains, including transportation costs beyond Thunder Bay and loading of ships are pooled. After all CWB costs and initial payments are subtracted from the total revenue achieved from sales of a particular grade of these grains during a crop year (Aug. 1 to July 31), the remaining surplus is divided by the number of tonnes of that grade of grain handled by the CWB that year. A per tonne final payment is then distributed to all producers who sold that grade of grain to the CWB during the crop year.

Historically, grain prices in Montreal and the lower St. Lawrence River terminal locations were higher than in Vancouver, partly because Canada's main foreign customers of grain were in Europe. The cost of moving grain from Thunder Bay to the lower St. Lawrence locations was about the same as the price premium at this location over Vancouver, thus making in-store

prices at Thunder Bay and Vancouver approximately equal. However, for a number of reasons, this historical relationship has changed since the early 1970s. First, the main destination of grain exports from Canada has shifted from western European ports to eastern European and Asian ports. Second, the development of larger and more efficient ocean-going ships resulted in smaller price spreads among all ports in exporting countries. Third, the cost of transporting grain through the Great Lakes on the way from Thunder Bay to the lower St. Lawrence River has increased dramatically. These events have caused prices in the lower St. Lawrence and Vancouver to move closer to each other; indeed, in some years the in-store prices in Vancouver have been higher than in-store prices in the lower St. Lawrence region for some grades of grain. Consequently, the in-store Thunder Bay price has frequently dropped well below the Vancouver price.

The Canadian Wheat Board examined proposals to change the pooling basis of CWB marketed grains. These proposals would require producers to individually pay for all freight charges to either Vancouver or the lower St. Lawrence River, whichever is less expensive. A problem with these proposals is that freight costs from all grain producing regions on the prairies (including Winnipeg) would be lower to Vancouver than to the lower St. Lawrence River, and capacity constraints at Vancouver and Prince Rupert would limit the quantity of grain that can be sent through west coast ports. Such proposals anticipate this problem with a suggestion that all producers in the prairies (including those in Manitoba) pay the freight rate to west coast terminals, even though grain produced in Manitoba and eastern Saskatchewan would mostly be shipped through Thunder Bay and the St. Lawrence River. The difference between shipping costs from the eastern prairie regions to the lower St. Lawrence River and from these regions to Vancouver would be subtracted from the CWB pool accounts at the end of the marketing year.

Two separate analyses were undertaken, each using the St. Lawrence pooling method:

5A) Producers pay WGTA rates that were re-calculated to reflect the different basis of pooling costs; and

5B) Producers pay full compensatory rates but receive compensation for loss of the Crow Benefit, based on the third proposal of the Manitoba Advisory Council, which is payment of an annuity based on historic shipments over 15 years.

With WGTA freight rates, the least expensive terminal location for all producers would be Vancouver, even though grain produced in Manitoba and eastern Saskatchewan would be forced to go through Thunder Bay and the St. Lawrence River. This would make farm level prices in western Alberta the highest and prices in eastern Manitoba the lowest on the prairies.

With full compensatory freight rates, the least expensive terminal location for producers in eastern Manitoba would be Thunder Bay. The lowest farm level prices in this situation would be in western Manitoba.

STUDY FINDINGS

Crops Sector

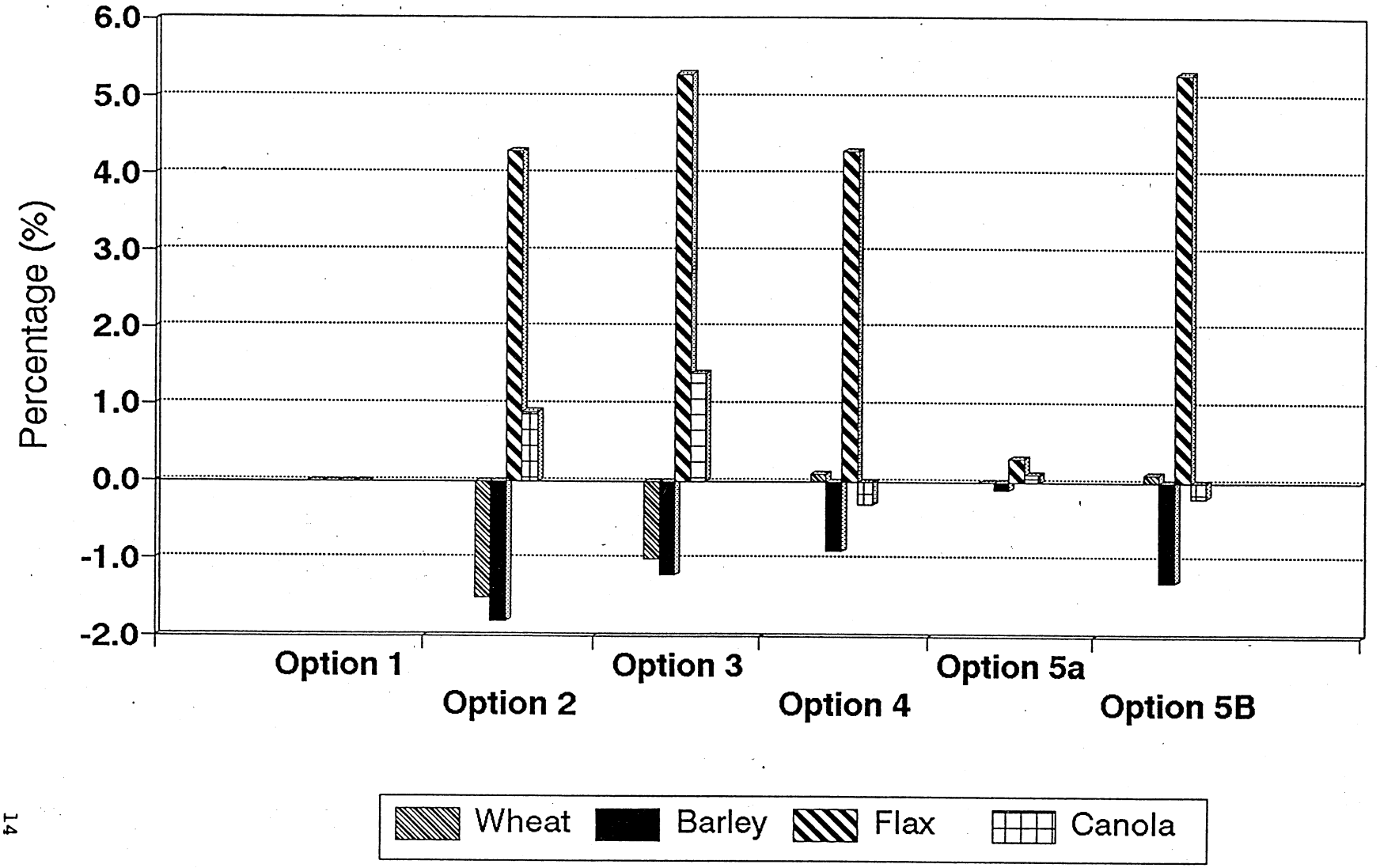
Relatively small impacts could be expected on cropping patterns in the prairie provinces from shifting from WGTA to compensatory freight rates for grains and oilseeds. The general production and trade effects of an increase in freight rates were found to be:

- Increased production of low volume, high value crops (flax and canola), as shown in CHART 1
- Decreased production of high volume, low value crops (wheat and barley), as shown in CHART 1
- Increased levels of summerfallow, as shown in CHART 2
- Reduced exports of barley, as shown in CHART 3
- Increased exports of flax, as shown in CHART 3

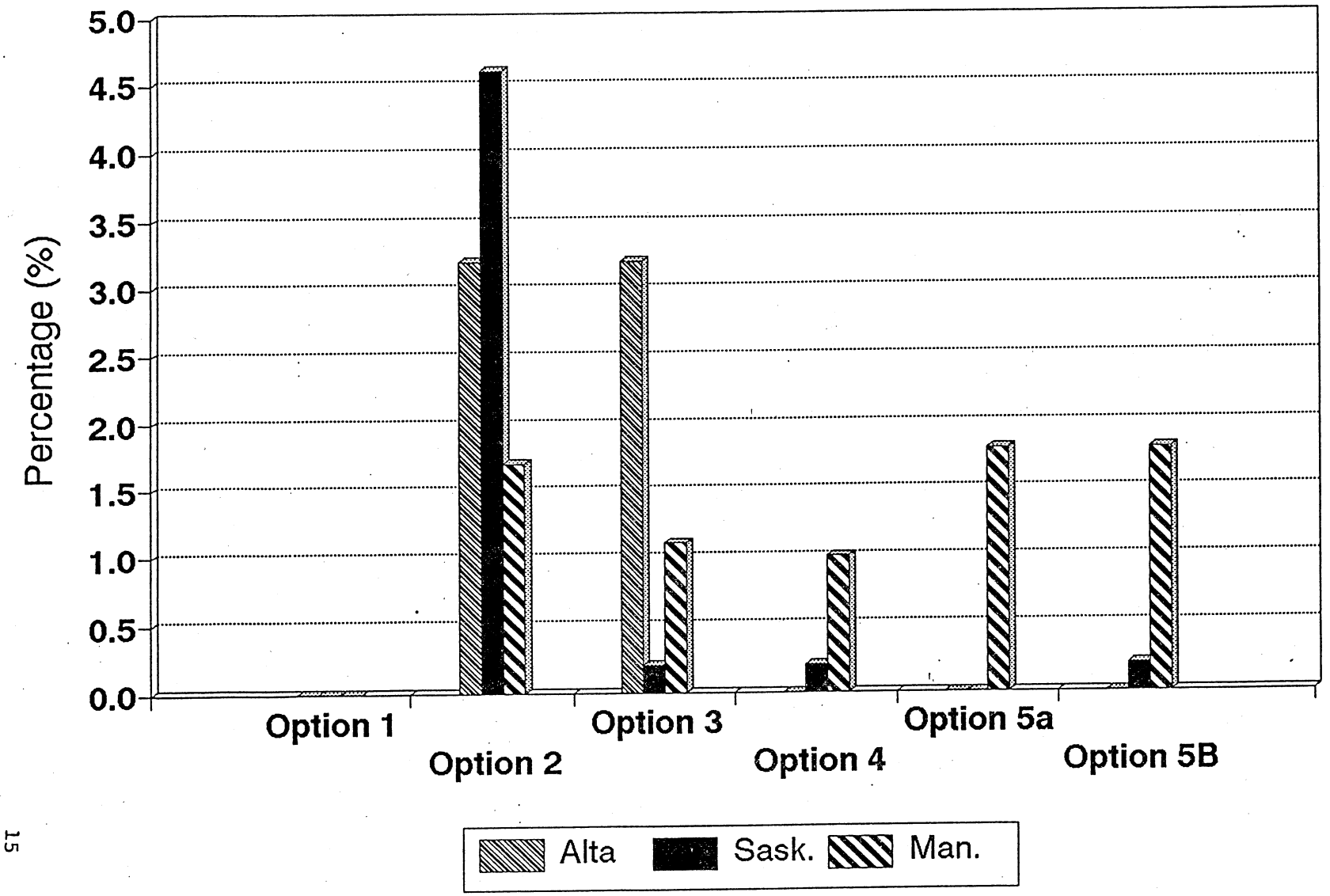
The changes in production patterns and exports of prairie grains and oilseeds from imposition of higher freight rates were found to be of a relatively small magnitude, reflecting the limited alternative production opportunities for most crop land in western Canada. However, the financial impacts on the crop sector differed significantly among the various options studied, as shown in CHART 4.

- Much lower net margins in Option 2 where no compensation is paid
- Higher net margins in Option 3 where compensation would be paid in the form of an annuity
- Higher net margins in Option 4 where 81 percent of Crow Benefit would be paid directly to producers
- Higher net margins to crop sectors in Alberta and Saskatchewan with St. Lawrence pooling

Production of Western Canadian Grains
Percentage Change from Status Quo



Western Canadian Summerfallow Area
Percentage Change from Status Quo



Export of Western Grains/Oilseeds
Percentage Change from Status Quo

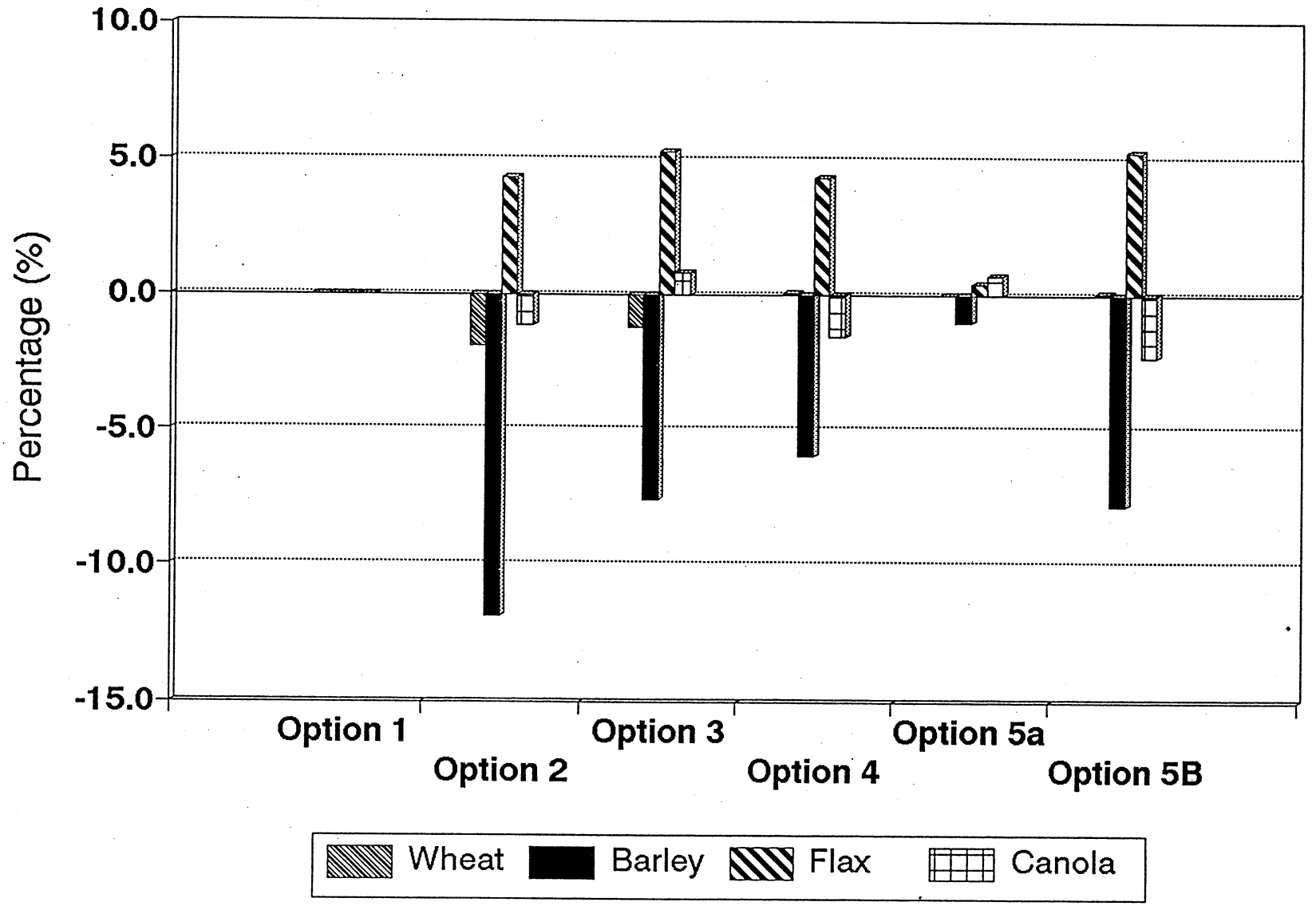


CHART 3

- Lower net margin to the crop sector in Manitoba with St. Lawrence pooling

It should be kept in mind that the compensation scheme studied in Options 3 and 5B last for only a fixed time period (suggested to be 15 years). At the end of this time period, compensation to producers would end and crop sector net margins would be vastly decreased.

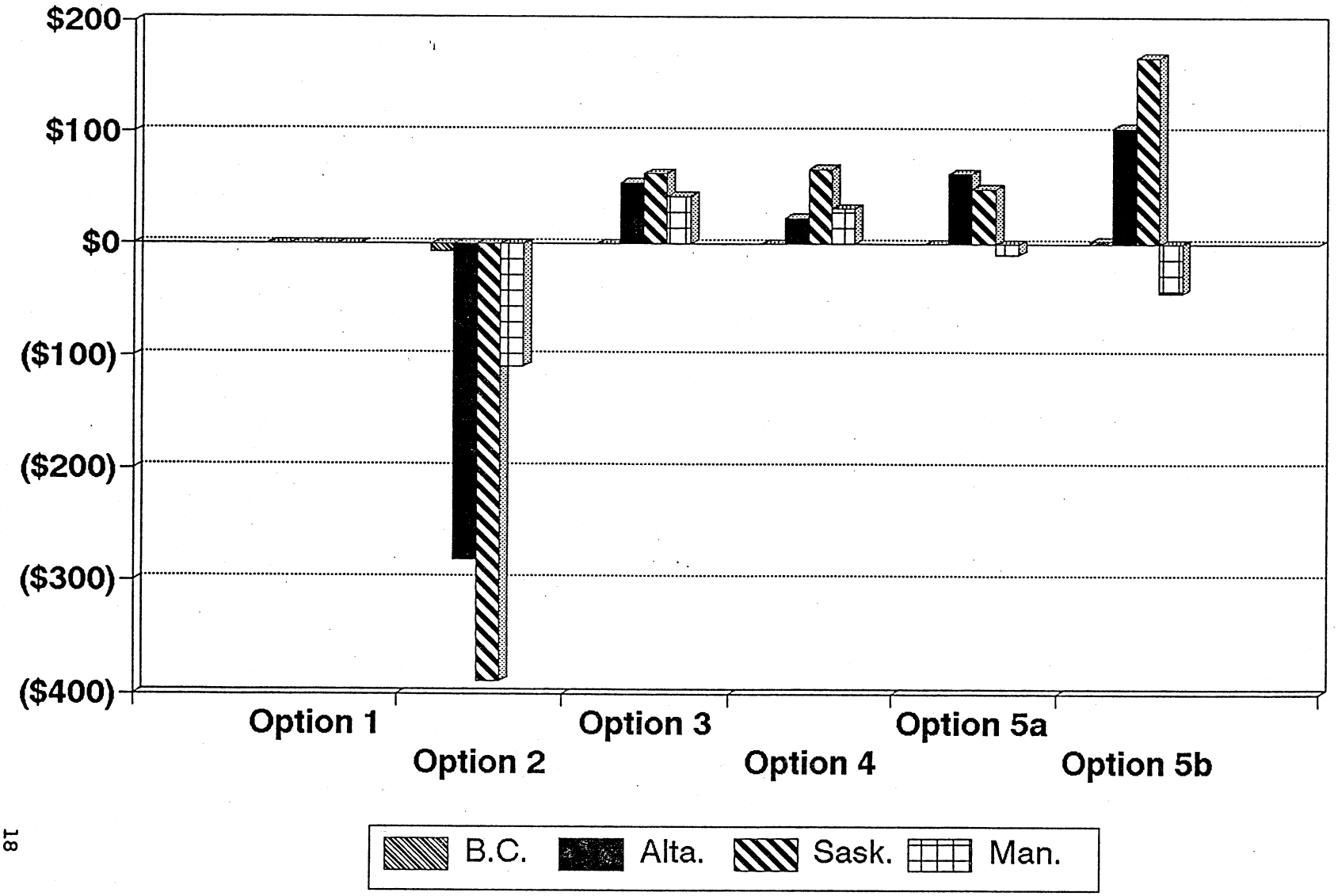
Another major impact on the financial health of the prairie crops sector from imposition of compensatory freight rates would be:

- Much lower annual land rental values which, if not compensated, would drastically reduce farm equity on the prairies, as shown in CHARTS 5A and 5B.

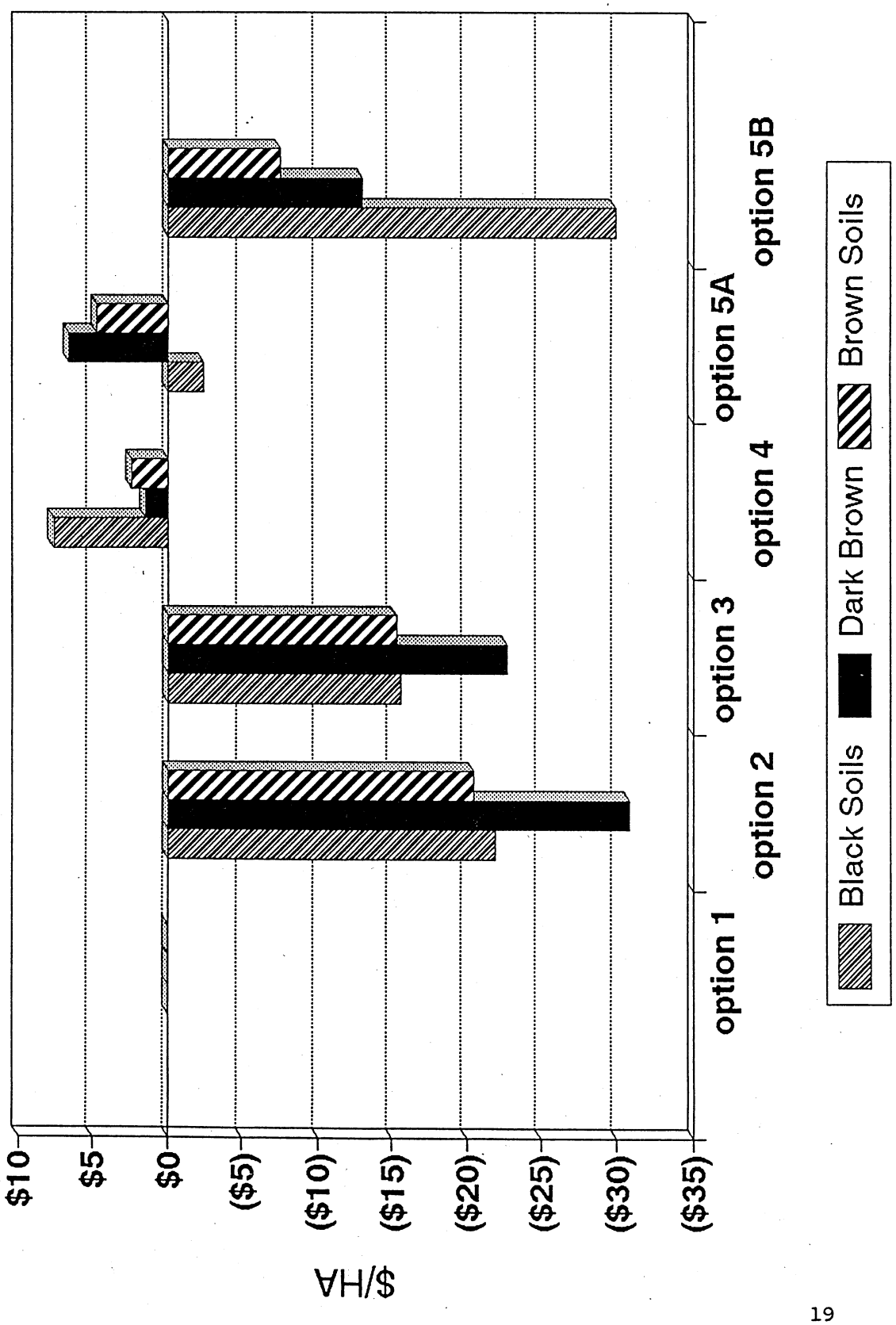
The largest negative impact on land rental values was in the black soil zone, especially in Alberta, where the productive potential of the land is the highest. Except for the black soil zone in Alberta, all other regions in the prairie provinces experienced a small rise in the rental value of land with the Gilson Proposal (Option 4). This would occur because the economic benefits accruing from the increases in efficiency of handling and transporting grains and oilseeds, as well as from changes in cropping patterns, offset the increase in producer costs of transportation.

Land rental values increased in a minor way in Alberta and Saskatchewan with the St. Lawrence pool and WGTA rates. In this option, land rental values in Manitoba decreased slightly. However, the St. Lawrence pool with full compensatory rates caused land rental values to be significantly lower in Manitoba and the black soil zones of Saskatchewan.

Net Margins - Crop Sectors
Changes from Status Quo ($ million)



Land Rent Rates - Alberta
Change from Status Quo ($/ha.)



Land Rental Rates - Sask. & Man.

Changes from Status Quo ($/ha.)

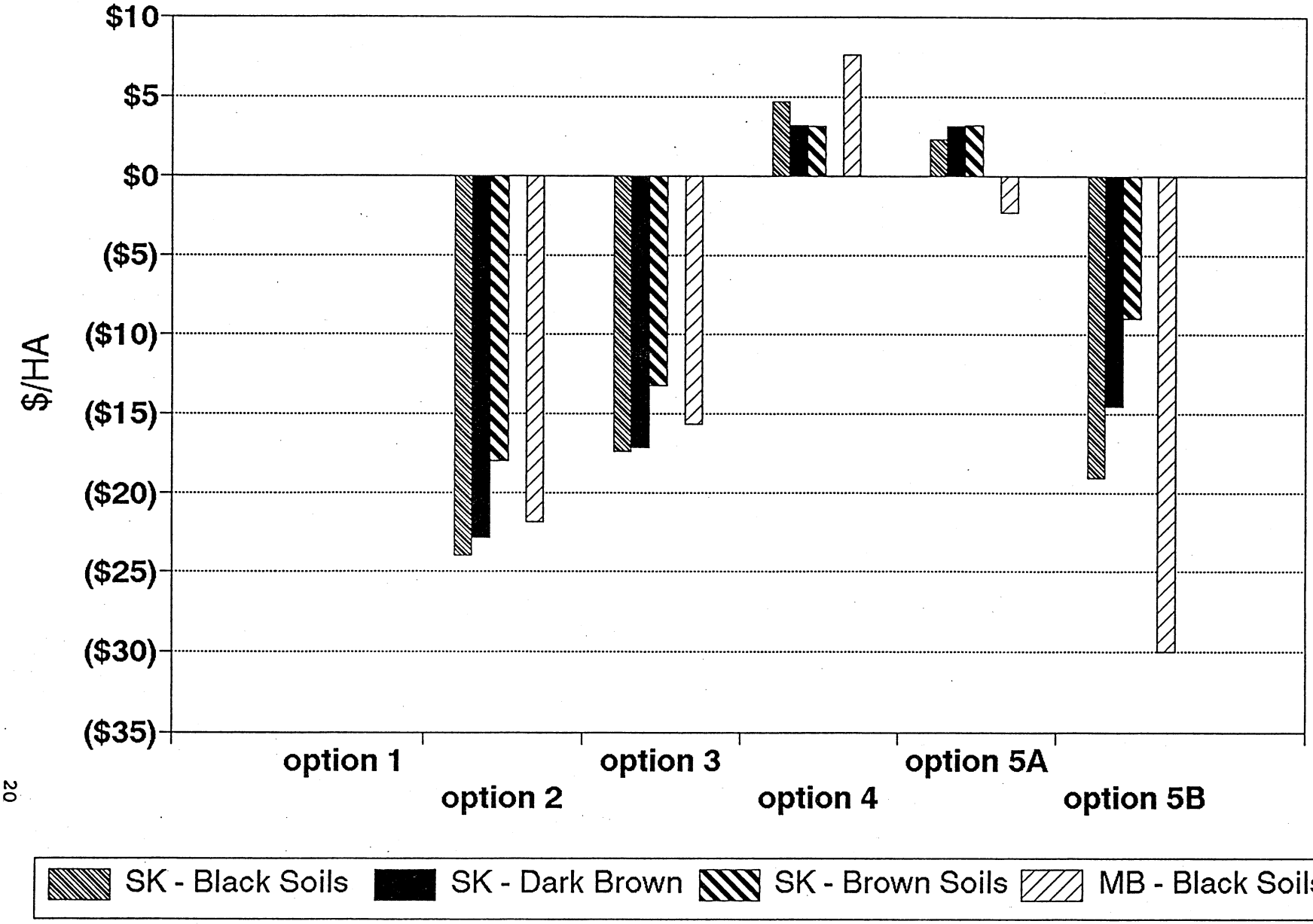


CHART 5B

Beef Sector

Expansion of the beef herd in the prairie provinces is closely associated with reductions in the farm level price of feed grains. As shown in CHART 6, it was found in this study that higher freight rates for prairie feed grains would lead to:

- expansion of beef breeding herds in most provinces, including British Columbia and Ontario
- no change in Quebec's beef breeding herd
- decrease of Alberta's beef breeding herd in the St. Lawrence pool option.

Introduction of Crow Offset Programs in Manitoba and Saskatchewan (Option 1) permitted about a two percent increase in size of the beef breeding herds in those two provinces, but no changes in the other provinces. With the present pooling method, the largest expansion in the beef breeding herd came in Option 2, where grain producers paid full compensatory rates and it was assumed that no efficiency gains would occur in the grain handling and transportation system. In Option 3, grain producers faced full compensatory rates, but the grain handling and transportation system had reductions in real costs of operation. In this policy option, beef herds expanded by over two percent in Saskatchewan and Manitoba as well as by a small percentage in British Columbia and Alberta. The Gilson proposal made grain producers pay 81 percent of total freight costs. Expansion of the beef herds in Saskatchewan and Manitoba, while substantial, were less than in Option 3. Introduction of Crow Offset Programs in Manitoba and Saskatchewan (Option 1) permitted about a two percent increase in size of the beef breeding herds in those two provinces.

The largest increase in the Manitoba beef breeding herds occurred with a change in the pooling basis from Thunder Bay to St. Lawrence in the case where grain producers were required to pay full compensatory rates (Option 5B). The large

Number of Beef Cattle
Percentage Change from Status Quo

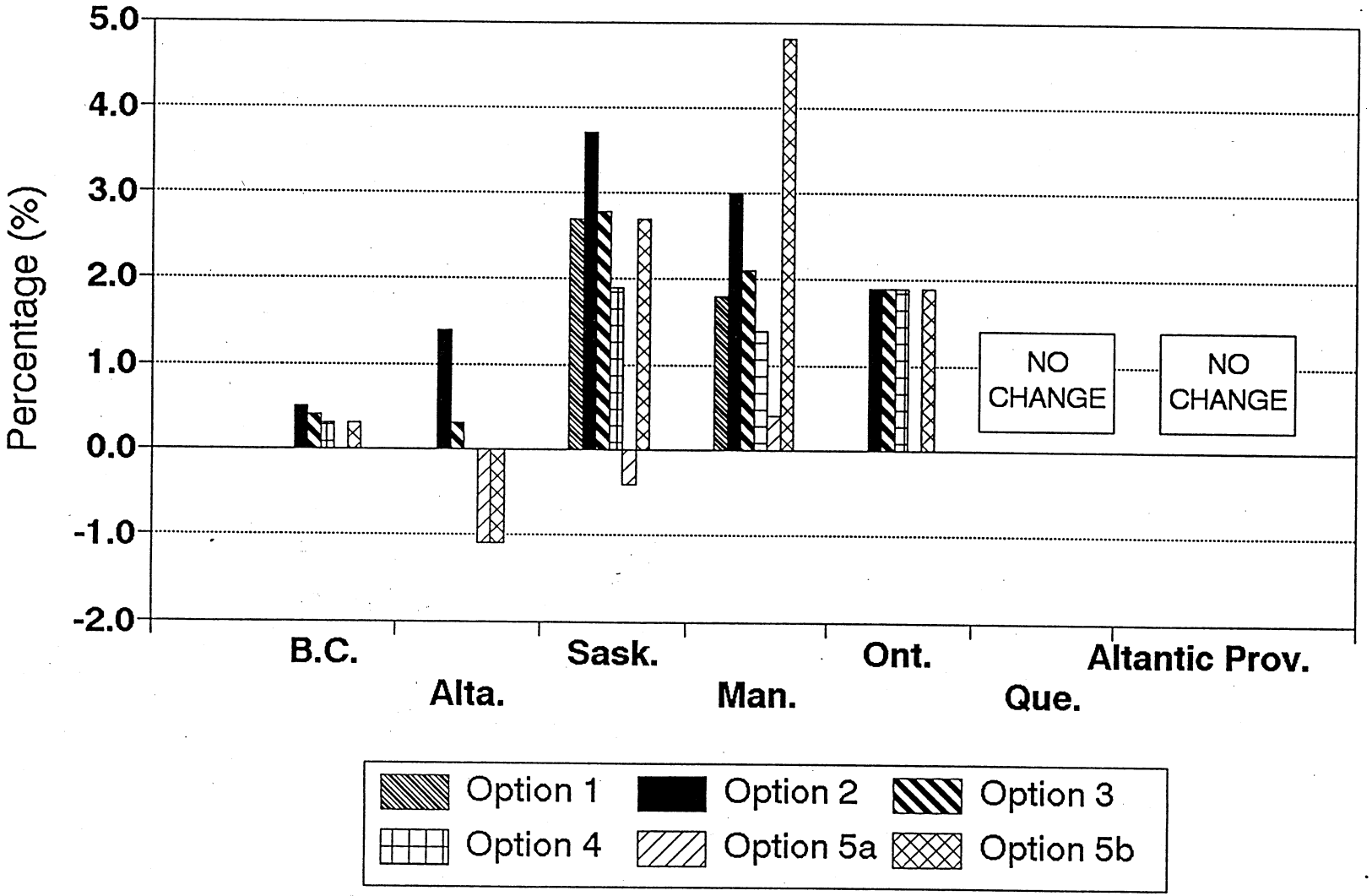


CHART 6

increase in Manitoba was caused by the substantial reduction in the farm level price of barley.

As shown in CHART 7, imposition of higher freight rates for prairie feedgrains would cause:

- Relatively large increases in beef feeders in Manitoba and Saskatchewan
- Small changes in feeder animals in Alberta in most options
- Large percentage increases in feeder animals in Manitoba and British Columbia and large percentage decrease feeder animals in Alberta from full compensatory rates and the St. Lawrence pooling system
- Reduction in beef feeders in Ontario
- No change in beef feeders in Quebec

Associated with the increases in beef production and the lower costs of feed grains in the prairies from full compensatory rates would be:

- Large increases in net margins to the beef sectors in the prairie provinces, as shown in CHART 8.

The increase was more than 10 percent in Manitoba for all policy options except Option 1; the estimated increase was nearly 66 percent for the option with full compensatory rates and St. Lawrence pooling. Alberta had more modest increases in beef sector net margins for most policy options except for the St. Lawrence pooling option, where net margin to the beef sector was reduced from the base level. Ontario producers experienced about a four percent reduction in net margins for most policy options, due mostly to the reduction in size of the feedlot sector. The net margin to the beef sector in Quebec was negatively affected by a small amount due to a reduction in price of low quality beef (of which Quebec annually markets a considerable amount).

Hog Sector

Like the beef sector, hog production would be made more profitable on the prairies from lower feed costs (see CHART 9). In particular, it was found in this study that:

- Hog production in the prairie provinces would increase by less than four percent
- Expansion in the hog sector was about the same for all policy options

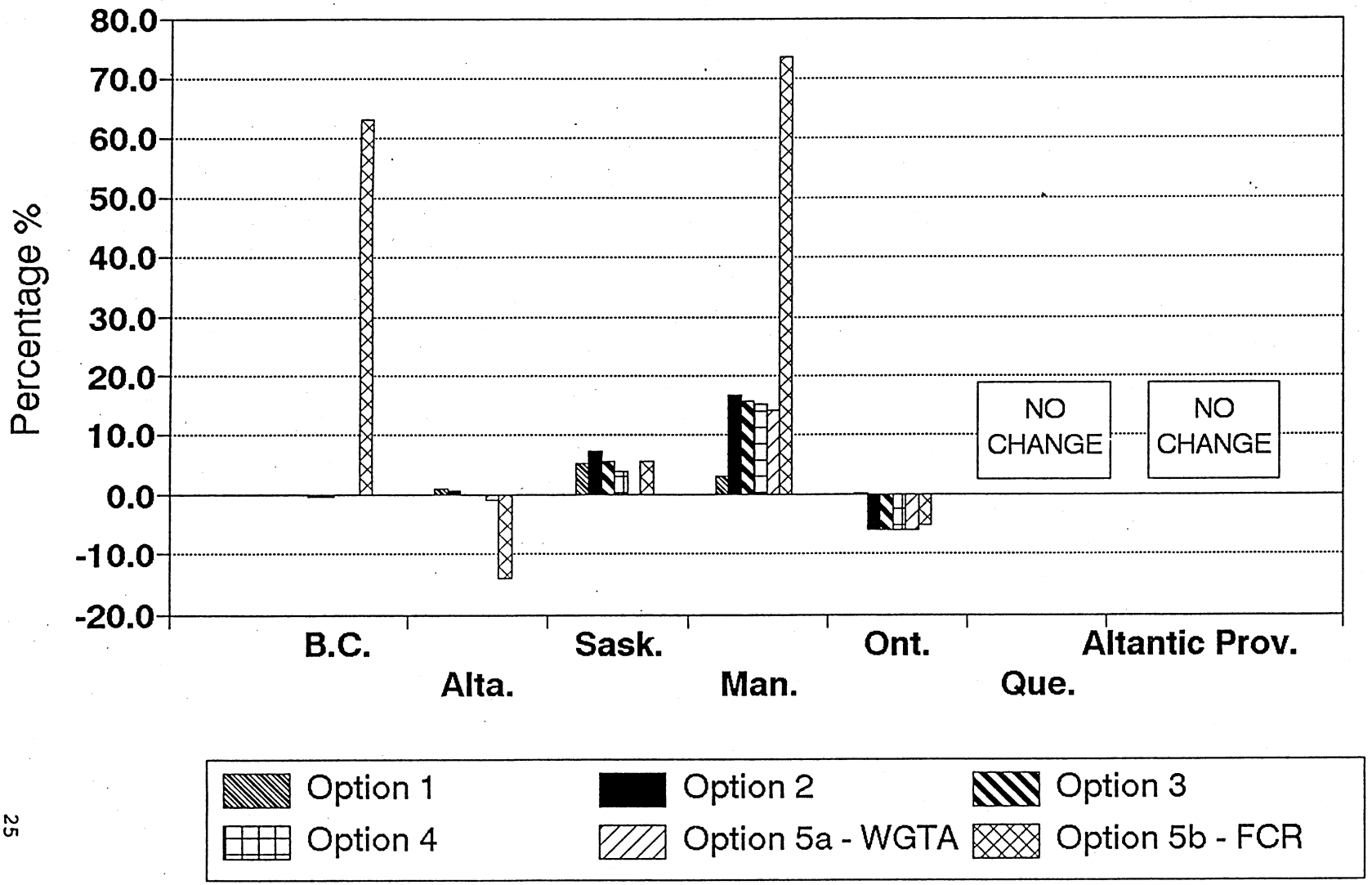
The increase in hog numbers with the higher freight rates for grains and oilseeds was relatively modest. The largest increase in hog production with the Thunder Bay pool occurred in the second option where no efficiency gains accompanied the higher freight rates. Hog production increased more in Manitoba and Saskatchewan than in Alberta because of the adjustment that occurred in hog production in Alberta in the late 1980s , partly in response to the Crow-Offset Program.

As shown in CHART 10, the major financial impacts on the hog sector were found to be:

- Net margins to the hog sectors in all three prairie provinces increased substantially where full compensatory rates were charged for transporting grain and the present pooling system was in effect
- With the St. Lawrence pooling system and full compensatory rates, hog producers in Manitoba and Saskatchewan would gain substantially while those in Alberta and British Columbia would lose

Hog producers in the four western provinces would gain substantially from changing the freight rate structure from WGTA to full compensatory rates if the Thunder Bay pool remains in effect. While they would gain the least under the Gilson option, they would be nearly unaffected regardless of whether or not compensation was paid to grain producers for loss of their Crow Benefits. With

Number of Beef Feeders
Percentage Change from Status Quo



Net Margins - Beef Sector
Percentage Change from Status Quo

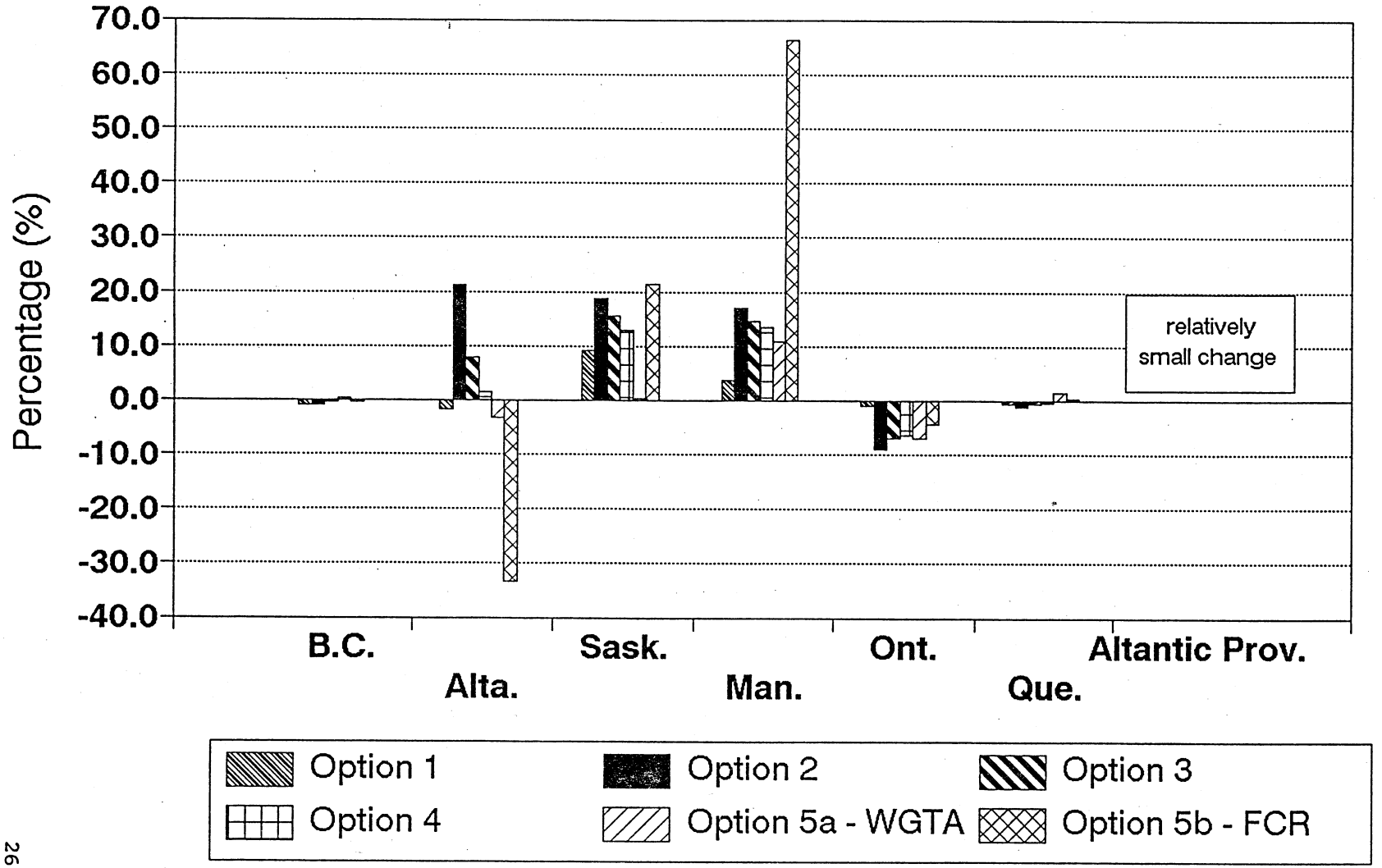
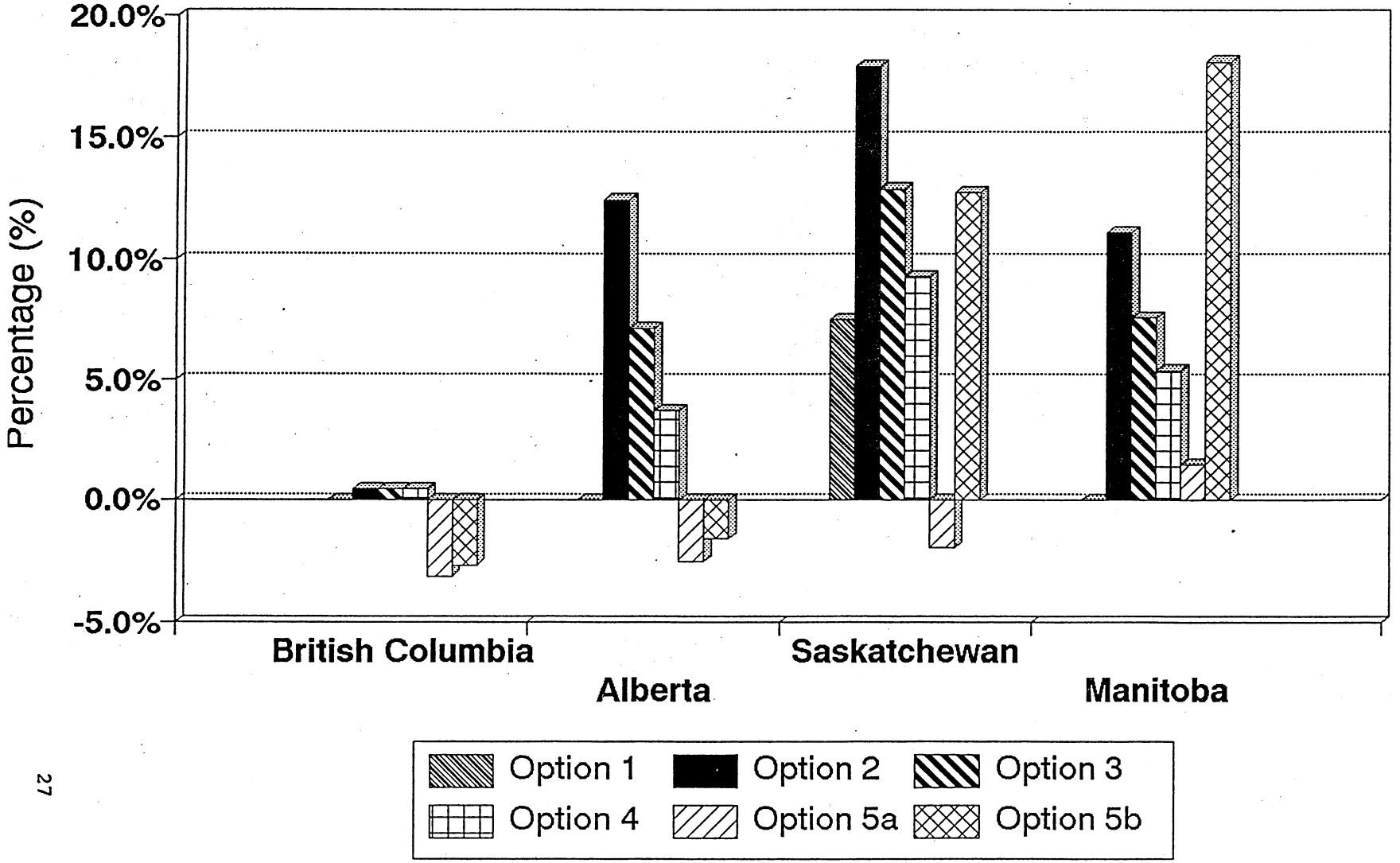


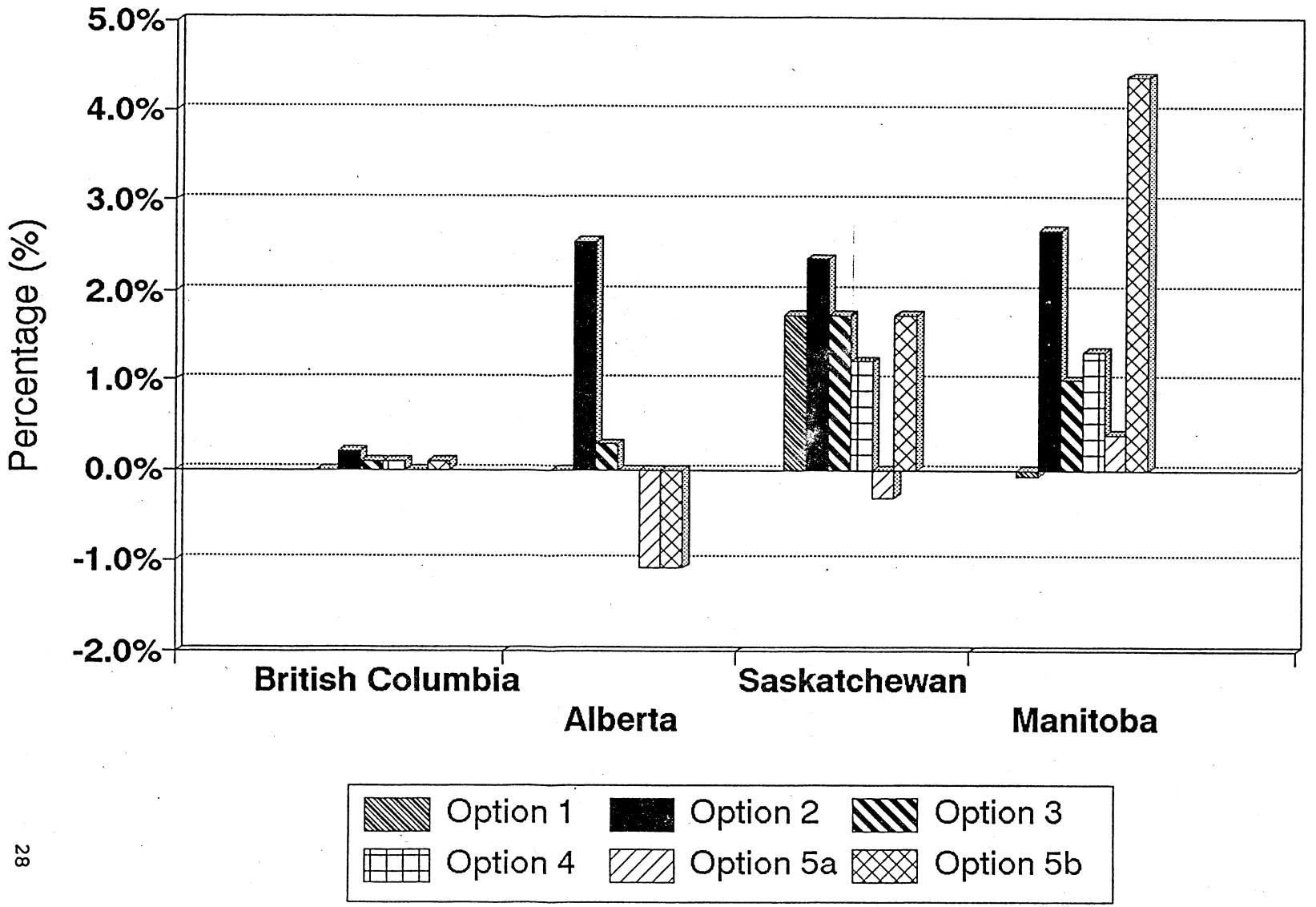
CHART 8

NET MARGINS - PORK SECTOR

Percentage Change from Status Quo



Number of Sows on Farms
Percentage Change from Status Quo



the St. Lawrence pool in effect, hog producers in the three western provinces would lose a small amount under the WGTA freight rate structure. Hog producers in Manitoba and Saskatchewan stand to make tremendous gains if full compensatory rates are instituted under the CWB proposal for a St. Lawrence pooling system.

Total Economic Welfare in Canada

Corrections of distortions in the agricultural economy of western Canada can provide important economic gains to the country as a whole. As shown in CHART 11, a major finding of this study was:

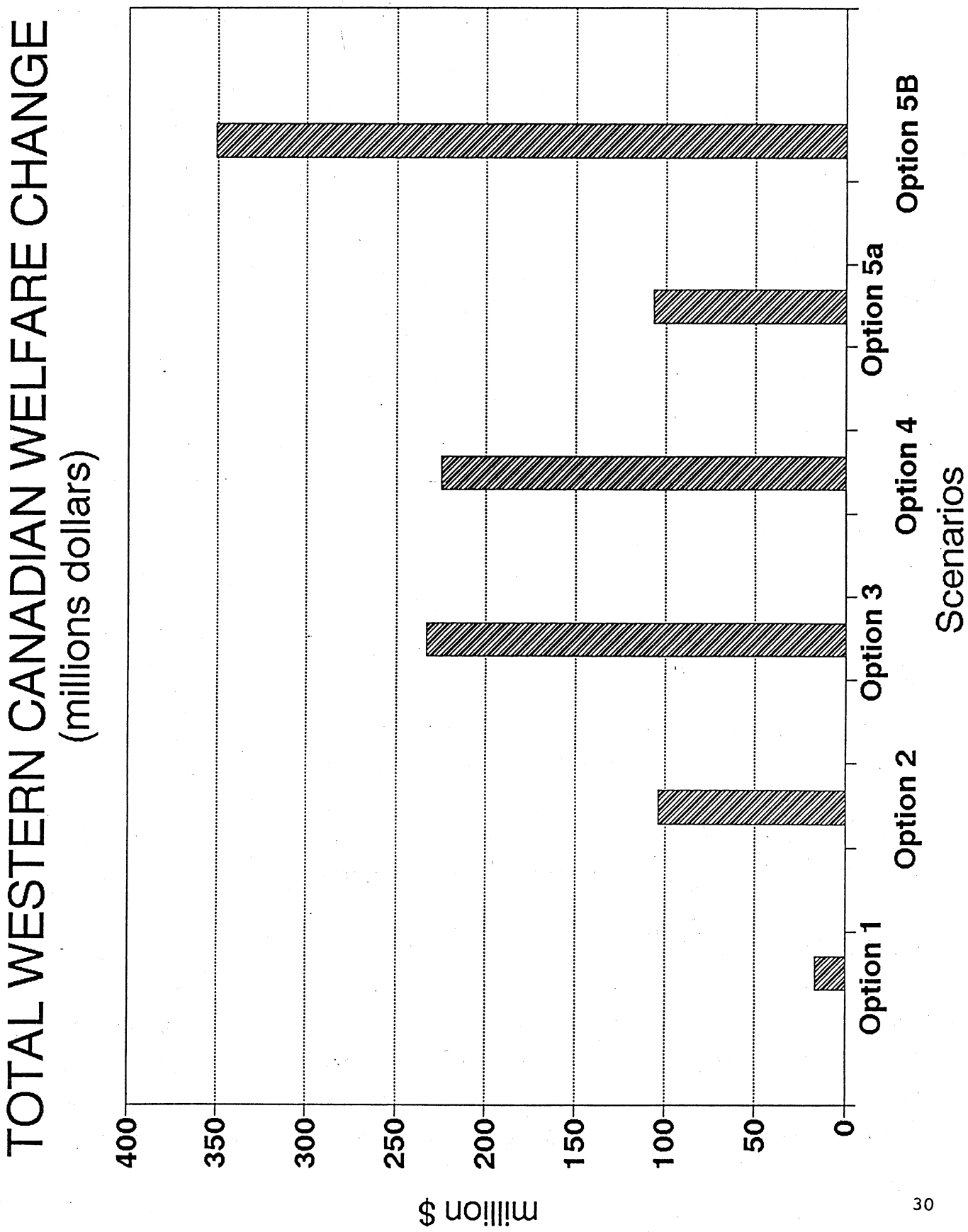
- all policy options resulted in an improvement over the base case in overall economic benefits to the country

The largest gain in economic welfare would occur where full compensatory rates are used in conjunction with the St. Lawrence pool; the net economic gain in this option was estimated to be $351 M. Two distortions are corrected in this policy option: producers of grains and oilseeds in western Canada would pay the full costs of transporting their crops to terminal locations and the distribution of total costs of transporting grains and oilseeds to terminals would more closely represent the true costs from various regions in western Canada. Policy options 3 and 4 resulted in approximately the same amount of benefits to the Canadian economy: about $225 M. Even Option 1, Crow Offset Programs in Saskatchewan and Manitoba, was beneficial to the total economy. That policy would correct some of the distortions caused by the WGTA in those two provinces.

Secondary Industries

It was expected that different policies on freight rates for western grains and oilseeds would lead to different impacts in the various regions of Canada. Results of this study support this. Not only were the level of impacts different under different options, but the regional distribution of incidence was different

CHART 11


TOTAL WESTERN CANADIAN WELFARE CHANGE
(millions dollars)
400
350
300
250
200
150
100
50
0
million $
Option 1
Option 2
Option 3
Option 4
Option 5a
Option 5B
Scenarios

as well. For example, institution of Crow Offset Programs in Saskatchewan and Manitoba benefitted the provincial economies of these provinces, with negligible impacts on the non-prairie region.

The worst case is represented in Option 2, where producers pay full compensatory rates, receive no compensation, and no gains occur in the efficiency of moving grains and oilseeds. All three prairie provinces as well as the other Canadian provinces, notably Ontario and British Columbia, had large decreases in the level of agricultural GDP. Under this option, there was an increase in the production of beef cattle and hogs in the prairie provinces. However, changes in these sectors were not large enough, particularly in Saskatchewan, to appreciably change the regional results. Under this option, there were some positive impacts on the non-agricultural GDP, through increased agricultural processing activities related to livestock slaughtering and meat processing. However, other types of agricultural processing, such as dehydrated alfalfa products, may be adversely affected under this option. This is because under the full compensatory rates, higher freight costs to Vancouver may change the competitive position of regions such as Manitoba and northwestern Saskatchewan.

Under the other two options where producers receive compensation, value-added impacts would primarily occur through increases in producers' income levels. Changes in the enterprise mix and level were small, yielding very small changes in secondary impacts on the non-agricultural sectors.

IMPLICATIONS

Implications For Primary Agriculture

Increasing the effective freight rates for transporting grains and oilseeds out of the prairie region would change the incentives for production of all agricultural commodities in western Canada. In particular, there is little doubt that in western Canada there would be:

- less production of wheat and barley,
- more production of canola and flax,
- more summerfallow,
- lower total exports of grains and oilseeds,
- more production of beef and pork, and,
- more opportunities for diversification into high value, low volume specialty crops.

A major finding in this study is that the magnitudes of these changes would not be large. Most regions in the prairie provinces have only limited opportunities to shift into alternative forms of agricultural production.

The production of beef and pork in western Canada would be stimulated by a decrease in the farm level price of feed grains. If crop producers were required to pay a higher proportion, or all, of the real cost of transporting their products to market, farm level prices of grains would be reduced. Yet, it is likely that if an increase occurred in the producer cost of transporting grains to export terminals, the farm level prices of the grains may not be reduced by the full extent of the increase in freight rates, thus causing a smaller expansion of the western Canadian livestock industry.

Removing the Crow Benefit subsidy would have substantial financial effects on the primary agricultural industry of western Canada. Crops sectors in western Canada

would be severely affected in terms of both net margins from cropping operations and value of the land base. Livestock sectors in western Canada would gain from the availability of less expensive feed grains; however, gains to the livestock sector would be much less than losses to the crops sector in the absence of the Crow Benefit subsidy.

Modification of the Canadian Wheat Board pooling system to better reflect the true costs of transporting grains and oilseeds to west and east coast terminal locations would create significant overall gains to primary agriculture in western Canada. However, the profit incentives could create quite different patterns of production than have bene observed in the past. Livestock production in Manitoba and eastern Saskatchewan would likely be substantially expanded, due to the higher freight rates and consequent lower farm level prices of feed grains. At the same time, lower freight rates in Alberta could cause a major reduction in the feedlot industry of that province.

It was determined in this study that Quebec and Ontario would suffer modest reductions in net margins to their livestock sectors if prairie grain prices were reduced.

Implications For Regional Development in the Prairie Provinces

Development of the prairie provinces would be dependent on the type of policy that was used to change freight rates for grains and oilseeds. Without any compensation to producers, there would be an immediate reduction in the income levels of farmers. This would have an effect on the regional economies in western Canada in terms of new investment in agriculture, adoption of new technologies, survival of rural communities, and the general pattern of migration of people from regions or provinces in western Canada. In the long run, if these profitability levels were to continue, there would be a major realignment of input prices, particularly for land, until the agricultural industry reaches a

new state of equilibrium. Even then, during the interim period there would be a large social cost of making adjustments, and a major transfer of wealth away from existing land owners.

Under options where producers receive compensation, changes in total income levels would be positive (at least to the end of the annuity payout period), which would result in positive impacts on the rest of the regional economy. However, the magnitudes of income changes are relatively small so that major changes in community viability and out-migration would not occur.

Implications For the Environment

Subsidizing the transportation of export grains from the prairie provinces has implications for land use and the environment. The WGTA rate structure encourages the cropping of marginal land, which is the kind of land that, if left in its natural state, could be used as a pasture resource for the beef sector. This is especially serious in the brown soil zone, an area characterized by frequent shortages of moisture. The degradation of organic matter, increased salinity and erosion of soil in the marginal areas of crop production is an unhappy consequence of subsidized freight rates for grains.

The environmental ledger from a particular government program seldom has debits without credits however. Because of the higher farm level grain prices from subsidized freight rates, producers have had an incentive to use longer rotations and to summerfallow less. It is well known that a reduction in summerfallow has beneficial effects on soil tilth and organic matter, which makes wind and water erosion as well as salinization less likely. Of course, higher levels of cropping on stubble land requires the use of additional inorganic fertilizers, herbicides and insecticides, many of which have undesirable environmental effects.

Replacement of WGTA rates with any of the policy options analyzed in the study could have environmental impacts. Policy Options 2, 3, 4 and 5B decrease farm level prices of grain and can be expected to cause some marginal land to shift from cereal or oilseed production to forage production, to feed the expected larger herds of beef cattle in western Canada. This would be beneficial for conservation of the land resources. Returns of marginal land to forage production may also be helpful in maintaining wildlife populations. However, some areas in the prairie provinces, particularly in the brown soil zone, have limited opportunities for substitution of crops.