PROPERTY RIGHTS, PRODUCTIVITY AND MARKETS:

STRUCTURAL PROCESSES AT WORK IN CONTEMPORARY RURAL CANADA

Atakelty Hailu* and L. Peter Apedaile†

Draft under construction

This paper does not reflect the position of the Canadian Rural Revitalization Foundation (CRRF).

* Lecturer, School of Agricultural and Resource Economics, The University of Western Australia, Crawley (Perth), WA 6009, Australia

† Peer Diagnostics Ltd,. RR1 Willingdon, Alberta, Canada, T0B 4R0, and Professor Emeritus, The University of Alberta, Edmonton, Canada T6G 2H1

CONTENTS

1 Introduction

The major change in Canada's rural economy is that the economic organizations of businesses, households and rural communities are no longer suited to generating productivity and securing the payoffs in the new knowledge economy. The organization of enterprises, including farms, has to be restructured to participate in the productivity growth needed for Canada to sustain its status as a nation state. Nevertheless, successful as the hinterland may be in this restructuring, it is historically unable to retain the benefits. These accumulate elsewhere because of the organization of markets and proprietary rights for most of the inputs, transactions services and value-adding that connect the rural to the global economy.

This change marks a new stage in the transformation of artisan resource enterprises, not to the post-war industrial organizations still favoured by policy, but into knowledge organizations needed to keep Canada sovereign.

The unique feature of this change is that it is happening now for the first time in a global process of renegotiation, as opposed to war and treaty, of national identities defined by sovereignty over property rights. Liberalizing trade in proprietary and intellectual property rights is proceeding by a `case law' style blurring of historic treaties and trade agreements. Consequently the options for hinterland Canada, as a net user of technology, lie with how it positions itself globally on organization of access to property rights, demand responsiveness, and market structure and conduct.

We take the position that government is in fundamental conflict of interest with the exigencies of a hinterland strategy to benefit rural citizens as governments work to sustain nationhood and defend regional interests. We argue that rural Canadians, as the primary players on matters of human and animal habitat, and environmental and food security, have a much different and multifunctional role than urban Canadians in balancing this conflict of interest.

This major change for Canada's rural economies, their unsuitable organizational structures, we argue, may be accounted for by increasingly complex interactions of property rights, market structure, earnings structure and productivity in the new economy. Background conditions such as a satiable demand for many rural outputs, climate, the invention of substitutes for natural resources, and the location disadvantage of most of rural Canada also play a role. However, we further argue that lack of incentive, and unpredictability of good outcomes continue to hamper formation of economic, human and social capital. A long history of economic disasters and dependency have left a legacy of inward looking governance and aging demographics.

The new rural economy is not the only recent entrant into the complexity of the global economy. The State (Crown) is too. It is re-engineering its mercantile role with the natural resources sectors. Besides holding the rights to forests, minerals, fish and water, it is alienating individual property rights, in the process of protecting its global status, These rights are essential to maneuverability for natural resource enterprises such as farming, fishing and logging.

The mercantile side of the Crown is also aggressively using trade as its growth strategy, given the small domestic market. It therefore not only permits anti-competitive practices domestically in the pursuit of trade advantage. It also promotes these practices within Canada, upstream and downstream of the rural economy, in markets for key inputs, technology, transactions services and commodities. These markets are concentrating domestically as these firms position themselves globally for competition.

The consequence is a squeeze on rural earnings, greater instability of earnings and stagnation of property values in real terms, despite steady improvement in productivity. Normally, long term productivity gains should improve earnings and wealth. However, without competitive markets, such as those that would be created by joint running rights on railroads, there is no clean market process to share productivity among, for example, farmers, shareholders and consumers. Furthermore many of the functions of the rural economy, such as ensuring food security, are not factored into markets and prices.

The major change of rural knowledge organization is now being felt most, through rapidly spreading redundancy of many of the traditional functions of the rural economy in the global economy. Communities, private enterprise, volunteer organizations, local government and ways of doing business no longer work well and in many ways no longer matter in the larger economy.

The global economy has no loyalty to community institutions and rural aspirations. Neither is loyalty expected, beyond assuring that the hinterland continues to supply commodities. Global shareholders have a much narrower definition of success than do rural people. In this situation the rural economy faces a dilemma. Rural policy, rural business and households can attempt to place distance between themselves and the global economy. But this is bound to reduce further incomes, wealth and opportunity. Or, an aggressive strategy of competitiveness and global integration, currently favoured by the Crown, could be followed. However, this strategy also damages severely earnings, income distributions, the environment and rural institutions, as evidenced during the past decade. Rural youth figure this out first, and being footloose, leave to obtain the room they need to grow.

How real are the changes? Very real. Globalization is now much more than the commodity trade on which the rural economy was built since colonization. Canada's rural economy has always been driven by this trade, from Mme Bolduc's reliance on cheddar exports to Britain, through the first shipments of coal and prairie grain in the early 1900s (to China), to cod, salmon, logs, shakes, dimension lumber, and pulp and paper, on to oil, gas and minerals. Yet despite this strong trade orientation, rural governance has remained, until recently, very local, socially stable, functional, cost efficient, protected, artisan, and family-based.

Globalization is different from trade because it changes completely the way of governance, management, finance, technology and ways of sharing earnings between rural and global players. Diverse values, unheard of beliefs and new restrictions on property rights are upsetting rural convention and social norms. Cross-subsidized hegemonic pressure on the Canadian non-rural business establishment and national social safety nets, including the gratuitous dismantling of agricultural safety nets, are shock treatment to rural services, farm viability and rural volunteers.

The benefits of globalization to the rural bottom line are buffered by slow progress on interprovincial trade barriers and territorial monopolies. Prices of intermediate industrial inputs such as energy, cement and fertilizers are actually increased by global opening, reinforcing the price supporting effects of interprovincial trade barriers. For business-women and men, farmers, and workers, the uncertainty and greater need for agility go well beyond the capacity of the learning culture and the social rural norms governing competitive behaviour.

This profound and fundamental reinvention of the rural economy being driven by globalization is fast. What used to be an intergenerational process of co-evolution has speeded up, becoming intragenerational. Large numbers of households, 60-100,000, many from the self employed mainstream of farming and fishing, have been forced to give up business in rural Canada in one decade. Similar proportions of forest workers have been displaced with month's notice. There is no count on closures of rural mainstreet commerce.

This paper takes a look at four aspects of ongoing structural change in rural Canada. They were selected for their effect on the potential for accumulation of wealth in rural Canada. Change is examined for the three main sectors upon which the Canadian rural economy was founded; - agriculture, forestry and fishing. We apply results from applied system dynamics research to attempt to explain the complex processes underlying these changes, and to deduce some strategic options for major rural players.

We argue in this paper that the new rural economy needs to realign its interests away from the mercantile side of the Crown, toward the agency function of the government as promoter and guardian of the wider interests of civil society. First we present the evidence that the long-standing mercantile rural dependency on the Crown is keeping four fundamental processes responsible for major changes in rural Canada active and more powerful than ever. Property rights, one, and markets, two, are moving against rural ambitions for wealth, at the same time as productivity, three, is increasing. The structure of earnings, four, reveals that farm households are responding by restructuring their sources of income to part-time, temporary, usually low paid jobs to offset the loss of their rights to resource rents as they give them up to other market players and the Crown.

This paper offers strategic options to address each of these four issues at each of the policy, community and enterprise levels. Each of three rural Canada's, defined in the next section, has a unique role to play in this self-organization process as the rural economy reinvents itself. The paper concludes that governments have a particularly challenging role to play. We argue that this challenge may only be met by sorting out their roles as agents of the rural and urban civil societies. As mercantilists managing the rights and entitlements to common property resources, government has to put much more back into the hinterland economy. This should happen through its multiple functions, rather than through commodity revenue, to assure globally competitive economic and social outcomes.

2 The three rural Canada's

This taxonomy for rural Canada, first suggested by David DaVila at the CRRF Workshop in Quesnel BC in 1994, helps understand the organizational structure. In general terms, rural Canada I is the source of most self-organization to fit into the new global trading economy. Rural Canada II appears to be taking on more of the characteristics of Rural Canada III, fueling the anti-trade argument that globalization marginalizes a growing proportion of the rural population.

Rural Canada I is globally competitive. It organizes itself around international standards of performance. It uses mergers and alliances with behind-the-scene political activity to concentrate market power and property rights to produce mainly generics. It resists policy interference, especially environmental restrictions. It benefits from trade liberalization, but is also the main target of global biotech and market conglomerates. It benefits from concentration of economic activity, yet is anxious about the decline of rural communities.

Rural Canada II is residential, intermixed in towns, villages and acreages with mainstream farms, fishing harbours and forest towns. Small and medium sized commerce and service enterprises and the public service support most of these rural households, about 50-70% of all rural households depending on the region. Commuting to jobs within and beyond rural areas is expanding. Rural Canada II is less dynamic and higher priced than Rural Canada I. It has a diverse bottom line, seeking its competitive advantage in productivity, local territorial monopolies, and a favourable political and policy environment. Concentration of farming and commerce is hollowing out and depopulating the rural communities of rural Canada II. Major changes move some of these households up to the ranks of Rural Canada I. Others shift to employment from self-employment. Still others somehow lose initiative and follow a path to disengagement from the active economy as retired residents or unemployed subsistence households. All are strongly attached to place.

Rural Canada III has remained much the same over Canada's history, a camouflaged and relatively immobile sump for marginalized households, including the illiterate and poorly educated, the aged, aboriginal and alienated people. People externalize their misfortune, blaming everybody but themselves, as they reflect their dependency. They are highly dependent on public social services, politically contrived eligibility for income transfers and temporary seasonal unskilled jobs. These households are relatively uninsured and do not have access to employment benefits packages. Major changes add to their numbers, but don't necessarily worsen their situation. They are an economic residual and culturally dissonant with Rural Canadas I and II.

The NRE research suggests that each of the three rural Canada's co-evolves in its own distinct way with global change. Each tries to make the best of what they have. However, behind their efforts lies a poorly understood dynamic with structural aspects of their relationships to the global economy. As the global scene rapidly reorganizes, the rural economy also is reorganizing. The question addressed here is how to do it better and in the joint interests of rural and urban Canadians.

3 Globalization: What does it mean?

To say that major changes in Canada's rural hinterland are simply the outcomes of the interplay of supply and demand is to trivialize the issues. The global economy may be viewed as an extraordinarily powerful set of relationships among economic systems self-organizing to concentrate wealth. One analogy is black holes, now understood to suck energy from surrounding parts of the Universe (Scientific American, 1999). It is also becoming clear that globalization is enabled by the ever more powerful driver of insatiable demand and the ability to extend that insatiability.

In specific terms, rural is linked structurally to the rest of the economy through institutional and market arrangements, buffered by transaction costs for transport communications and brokerage. These arrangements are generally more adverse for rural households than for urban households, because the enterprises in the hinterland economy depend more on property rights for income. Long-term erosion of rural private property rights in Canada continues to extract economic rents from the rural income stream and to dampen rural property values, investment financing and entrepreneurial energy except in metro-adjacent places.

Property values reflect capitalized rents. Property assets and current rents are the primary basis for financing risk and uncertainty in any economy, and so are directly related to investment behaviour. The accumulation of wealth is a most powerful economic driving force at the household and shareholder levels. For example, one of the main features of Rural Canada III is that its households and micro-enterprises have few property rights and are excluded socially and marginalized economically from property markets, whether real or intellectual. Rural Canada III does little investing and has no hope of accumulating wealth. Consequently it has little wealth inspired motivation. Its retreat reinforces the marginalization of larger organizational restructuring.

4 The role of the Crown

The Crown (State) in Canada traditionally plays an active mercantile role in all these structuring processes, alienation of property rights, competition, income transfers and entitlements. This role is rooted in the history of Portuguese, Italian, French and British imperial interests in what are now North America's rural hinterland resources. Consider property rights.

The Crown, having secured the property rights to natural resources by conquest, has always dispensed and withdrawn these property rights as a classic mercantile instrument of development policy. Rural Canadians have always lived with the consequent dependency on the Crown for rights to resource rents, micro-managed by entitlements and regulation.

It was always understood that the inherent uncertainty in rural enterprise required access to economic rents to enable investment. At first, the Crown transferred its fur-trading, farmland, forest and mineral rights to private interests, such as the Hudson's Bay Company, colonists and the Canadian Pacific Railway, as an incentive to settle, secure and develop the territory.

The rural problems today could be ascribed to the contradiction inherent in the Crown's sectoral policies in recent decades. It has been withdrawing the mercantile rights to rents for farms, fishers and forest operators, while at the same time creating mercantile entitlements to market rents through tolerance of concentration in proprietary rights markets important to rural enterprise, especially natural resource enterprise. At the same time, the knowledge underlying productivity has changed from predominantly artisan to science. Consequently the family structure for farm business organisation and even food processing and resource-based manufacturing is no longer viable unless completely reinvented. Pluriactivity and diversification to handle uncertainty appear to be interim solutions.

The natural resource sectors have been steadily subjected to restrictions as their earlier exclusive right to transform resources into commodities was subordinated to the mercantile interests of the Crown and society. The modern day language of the civil society speaks of the shared right of citizens to the public good component of the resource base, including the rights of future generations to the private resource rents. To some extent this language may be a camouflage for modern-day mercantilism.

Where the Crown could not privatize its rights, it granted, or allowed by default, common user rights to its resources, such as fishing grounds. From this experience, `over-fishing' has become the modern term for profiteering, defined here as short term profits at long-term collective expense. The Crown has moved to take back, reduce and redistribute inshore fishing rights. The Crown has also participated in tightening up international agreements thereby globalizing local rights to fish. The always-precarious multisectoral and pluriactive coastal Rural Canada II has declined and been folded rapidly into coastal Rural Canada I and III.

Markets, both upstream and downstream of all rural enterprises continue to concentrate. Productivity gains within some of the resource sectors (especially agriculture) are appreciable. However, once adjusted for changes in property rights and market concentration, the productivity gains attributable to enterprise equity may be much less substantial.

Competition rules in Canada are rarely enforced. Part of the reason is the open nature of the Canadian economy, thought to require national level monopsony market power to enter the global playing field, witness the Prairie Pools and the Canadian Wheat Board. Alternatively domestic rural interests prevailed politically and markets were closed to global competition by supply management to retain economic rents, witness dairy and poultry.

The opportunity for a rent in rural earnings from intellectual and real property rights is eroded by market concentration. The composition of family business earnings, including farming and fishing, reflects this dilution of economic rents. Consequently, rural Canada II faces growing reliance on wage income from multiple sources of employment, One of these growing sources is minimum wage jobs in value-adding enterprises such as intensive livestock and horticulture, and meat, fish and vegetable processing.

5 Property Rights: First determinant of the change

The structure of property rights underlies the processes of wealth accretion for some, while for others it means economic and social marginalization and dependency. Concentration of property rights globally attenuates rights locally. The only counter-measure is local restructuring to concentrate local property rights, a process for which Rural Canada I has a distinct comparative advantage over the rest of rural Canada.

Property rights are a set or bundle of rights that represent the owner's privileges and responsibilities concerning the use of a resource or asset. The rights are socially defined and exist only as long as the society is willing to enforce them. A property rights system thus cannot be understood except in relationship to the economic, political, and social systems which produce it and which it influences (Bruce 1998). These rights may change due to changes in market conditions, public opinion, scientific knowledge, technology, lobbying and legal battles (Marchak 1998). All challenges to Canada as a nation state also challenge its definitions, allocations and protection of rights.

Attenuation of rights held by residents of rural places reduces their share of economic rents in community incomes, increasing the reliance on wages for income. Lower proportions of rents in incomes reduces the resiliency of economic enterprise in the absence of cross subsidies within households. This is the reason why Stabler has emphasized farm diversification beyond agriculture (Stabler, 199*).

A unique feature of rural property rights is the externality effect that accompanies the use of natural resources. For instance, agricultural practices have direct implications for rural amenities, habitat for wildlife, and ecological processes (Bromley 1996). Logging modifies the multiple non-timber benefits that flow from a standing forest resource. Fisheries entail externalities by way of costs imposed on others through stock effects. Rural property rights are therefore subject to contention and transformation as public sentiment changes.

We look at three classes of rights holders. The first is the State. The second is the citizenry and the third is the private landowner or lessee. The State plays the major role for fishing and forestry. The private landowner as rancher and farmer is the principal rights holder in agriculture. We ignore intellectual property rights, for simplicity, even though these are being shifted out of farming and fishing by the substitution of industrial intermediate goods for rural know-how. We also bundle intergenerational rights with those of the citizenry.

Restrictions on property rights reduce monetary rents and the economic value (to the producer[3]) of the property by restricting access to income from the highest-ranking use for the resource. Regulations of property rights relating to agriculture, forestry and fisheries have important implications for rural economies. Our research suggests that regulatory restrictions increase the instability and reduce the predictability of resource sector incomes (Solomonovich *et al* 1997).

---

[3] From the point of view of society, the value of the property includes the external benefits that others derive from it. This value may be increasing over time as the value to society of the public good services of agriculture and the environment, for example, increase with increasing urban incomes.

5.1 Agriculture

Agricultural land is either owned by the Crown or by individuals through rights granted at the pleasure of the Crown. Problems relating to agriculture and the environment arise because of uncertain or disputed property rights (Bromley 1996). An old example of disputed rights is the "fence in" or "fence out" debate between ranchers and farmers in Alberta for separating crops from livestock. The current regulatory focus on aspects of farming includes intensive livestock operations, riparian grazing and drylots, and pesticide use. These are addressed through the delimitation or curtailment of rights in the form of codes of practice and land use bylaws. The number of regulations restricting property rights is on the increase for agriculture.

The following is a look at new and modified regulations, using the Province of Saskatchewan farm and environmental acts as an example (Benson 1996). Most of these regulations have been introduced in the last 20 years.

1. **Agricultural Operations Act (1995):** This Act is a consequence of growing numbers of `nuisance laws'. The Act introduces some order and predictability into the ongoing erosion of farm property rights, by subjecting farmers' practices to discretionary review and approval by the State. The objective of this Act is to protect the farmer from 'nuisance' laws as long as the farmer operates according to an accepted agricultural practice.

   The Act is conditional right to farm. It replaces real property rights by a quasi human right to practice agriculture. Guidelines for farm practices and an approval process are set out in law according to the Agricultural Operations Regulations. The penalties are that a review board can ask the farmer to stop or modify the practice if it is found to be unacceptable.

2. **Dangerous Goods and Transportation Act and Regulations (1992):** This set of regulations removes the rights of farmers to transport self-generated waste, requiring farmers to out-source waste disposal services. An exemption allows farmers to haul up to 500 kg of self-generated waste for less than 50 km without a permit. An inspector can give fines or jail time for violations.

3. **Environmental Assessment Act (1995):** This Act requires an environmental assessment of all economic activities causing significant environmental impact. Penalties include fines. Activities excluded from the Act include: (a) modifications to existing irrigation or sprinkler system, that does not involve the release of pollutants, and (b) construction, expansion or modifications of domestic or farm water supply, well, pump house or dugout.
4. **Hazardous Substances and Dangerous Goods Regulations (1992):** This Act regulates underground fuel storage tanks on farms.
5. **Environmental Management and Protection Act (EMPA) (1983-1984):** The purpose of this Act is the regulation of pollution including spills, disposal of chemicals, etc. This is an application of the polluter pays principle. The polluter may be anyone who pollutes or who owns the land that is polluted. The effect is that financial institutions find this to be a risk greater than the credit risk from loans. They now require the farmer, or any landowner, to have an environmental audit done on all

property before obtaining a loan. The Act regulates physical changes to water bodies and requires permission to release contaminants into surface or ground water. Penalties are fines or jail.

The Act states that the Minister may call for an investigation into what he considers to be necessary with respect to the discharge of any pollutant. A pollutant is defined by the Act as being a discharge released before or after the Act, accidentally or otherwise, and is present in an area as harmful or potentially harmful to the environment. Contamination site identification may be triggered by legal requirements under the Environmental Spill Control Regulations (S. 4-8), the Hazardous Substances and Dangerous Goods Regulations (S .17) and the EMPA regulations. Contamination may be found in the form of a spill of pollutants which presents a risk to human or ecosystem, decommissioning activities, regulatory inspections, monitoring or complaint investigations.

6. **Pest Control Products Act (1983-1984):** Under this regulation, the applicator must follow the method set out on the label and use pesticides only for the purpose for which it is registered. It also requires proper storage and disposal of containers. Penalties include fines or jail.
7. **Soil Drifting Act (1983):** This Act allows rural municipalities to pass bylaws to regulate tillage practices that they feel are likely to cause rapid soil deterioration by wind erosion. Associated fines are very small.
8. **Water Corporation Act (1983-1984):** All water is crown property according to this Act. Impounding or diverting water flow on private land requires going through an approval process. Domestic wells and dugouts are exempt. Penalties are fines.
9. **Wildlife Act (1992):** This Act prohibits harming species listed at risk.
10. **Wildlife Habitat Act (1992):** 3.4 million acres of agricultural land in Saskatchewan are Crown land designated as wildlife areas. The leased property rights exclude cultivation or modification to this land. Penalties are fines.

These ten examples of attenuation of private property rights, do reduce the money earning capacity of land for the private owner.[4] Certainly the regulations are biased against industrialization process in agriculture, particularly for rural Canada I farmers. Exemption levels are aimed at the more artisan end of the spectrum of family farms.

5.2 Fisheries

West Coast

Fishing rights, unlike land titles, continue to be held by the Crown. The rights have been dispensed as non-exclusive entitlements to harvest fish and crustaceans from their common habitat, whether ocean, lake or river. The main changes to fishing rights for the

[4] As noted in the footnote above, these restrictions may increase the long-run social value of the land if externalities are taken into account. But there are no markets in which the farmer or the private landowner would be compensated for providing better environmental or other improved services to the public.

West Coast fisheries have been to make the fish less of a common property and the rights to fishing more exclusive and concentrated. This change has been implemented using licensing as part of the Pacific Salmon Revitalization Strategy of 1996. Prior to 1996 commercial fisheries were entitled to fish anywhere along BC's coastline. Now with each license, fishers are required to choose a specific area for a four-year period. Before the new strategy to limit private use of this common resource, commercial fishers could maximize their fish take by using all types of gear. Now the license holders are to choose a single type of gear to use permanently. This along with the high cost of the license has pushed out the smaller fisher vessels, and with them the Rural Canada II coastal economy.

License staking is permitted now that fishers require a single license for a single gear type and a single area. If they wish to fish in more than one area and with different type of gear they must buy another license. A license retirement program allowed fishers to sell their licenses in exchange for some lump-sum compensation for retiring.

Coastal rural households have lost the right to their main rent earning enterprise, leaving them with some subsistence agriculture, wage labour in forestry, and seasonal tourism and other service activities. Rural communities have been adversely affected because selling the licenses affects the income structure of the whole community and its amenity value, reducing future attractiveness to tourism. It is thought that the new structure of employment is also reducing access to the employment insurance safety net, enlarging the population in rural Canada III.

East Coast

The rural East Coast economy is perhaps the single most graphic example in rural Canada of the wholesale removal by the State of private rights to a collectively owned resource. The lifting of harvesting rights was viewed as the solution to a stocks problem. This economy was a complex combination of many sources of income within each household and community. Removing the resource rents of this one defining sector, by eliminating property rights has irrevocably damaged that economy.

The main process was the removal of licenses by buying out fishers willing to retire. The effect in rural communities has been devastating with the loss of licenses being mainly small boat operators. Local fisheries plants closed and villages experienced a 30% out-migration following TAGS. Property values for the remaining households and mainstreet collapsed, locking pre-retirement age groups in. Capacity reductions for fishing did not occur because the boats, gear and other licenses were transferred to large fishers.

The license fee was not based on gross revenue or the ability to pay by the fisher. The regulations for vessel owners were also changed and at the time of writing are only allowed to claim 25% of gross vessel landing to cover operating expenses. In many cases fishers found their income decreasing if they went fishing. They also faced increased costs of mandatory dockside monitoring, observer fees and harbour authority costs.[5]

5.3 Forestry

In Canada, public (Crown) ownership of forests predominates, accounting for 94 percent of the forestland. The traditional focus has been on timber, to the exclusion of the non-timber benefits of wildlife habitat, biodiversity, visual amenity, recreation, climate and hydrologic benefits from forest resources. The current focus is on multiple forest values and is more restrictive on fiber harvesting.

Forest policy and legislation in Canada has evolved through the following five major adjustments to property rights in the period from European settlement to the present (Natural Resources Canada 1997):

1) *Unregulated exploitation* (up to the mid-19th century)
2) *Regulation for revenue* (mid to late 19th century) – minimum size requirements, licenses, stumpage and ground rents were introduced but with little or no limits on harvesting.
3) *Conservation* (late 19th to mid-20th century) – creation of forest reserves, fire protection agencies, reforestation programs, prohibition of wasteful harvesting practices, forest inventories, and allocation of area-based, long-term tenures to companies that agreed to establish wood-processing facilities and abide by conservation practices. This period also saw establishment of forestry associations and schools.
4) *Timber management* (mid-20th century to late 1980s) – reaction to forest depletion; return of jurisdiction over natural resources to the provinces; adoption of sustained yield policies, including requirement of management plans from license holders
5) *Sustainable forest management* (late 1980s to present) – focus on multiple forest uses and functions; Canada Forestry Act (1989). Trends here include:
    - Self regulation: self-imposed codes of forest practices, certification, prompted also by public interest groups and environmental trade barriers
    - Public involvement/consultation
    - Non-traditional forest values: clash of values among interest groups claiming rights to the forests
    - Increasing globalization: impact on forest practice regulations, investment incentives, and tenure arrangements
    - Increasing scientific knowledge: direct impact on forest management
    - Fiscal restraint and deregulation: more responsibility placed on licensees and other forest user groups
    - Environmental and land-use legislation: requirement of land-use plans, restrictions on pesticide use and on the construction of access roads

[5]In addition, the Minister may specify conditions respecting the following to further regulate fishing: the age, weight, sex and species of fish; location of fishing and destination of catch; and size, colour and marking of containers. These are not, however, applicable to sport fishing, foreign fishing and aqua culture.

- Forest preservation: restriction or withdrawal based on more restrictive criteria than before
- Aboriginal and private land concerns: respect for aboriginal rights; regulation of private forests in some provinces, especially Quebec.
- International influences: Agenda 21 of the Earth Summit; Convention of Biological Diversity; Santiago Statement on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests, etc.

These changes indicate a redefinition of what is meant by Crown ownership. The Crown has taken back, under public pressure, some of the rights that were first leased to loggers and given these back to the public. The concept of Crown ownership has changed to a form of joint ownership of rights between the Crown as the State and the Crown as agent of the civil society. The freedom of the Crown as a State to make mercantile arrangements relating to forest resources has been curtailed. However, the `franchising' of forest harvesting rights to non-rural interests, many of whom are also off-shore, continues to extract resource rents to metropolitan areas, such as the lower B.C. mainland and to foreign corporate shareholders and consumers.

5.4 Strategic options for property rights

Governments face not so much a choice of strategic options, but rather a choice of strategic combinations of measures to address the erosion of private property rights. The balance in such combinations is an outcome of the self-organization among market-driven production/harvesting, public rights to amenity values, environmental recovery and investment in rehabilitation, justice and human rights.

First, governments could screen the impacts of environmental and natural resource use policies on rural interests. This is the rural lens concept applied to resource sector policy. Fisheries policy is an example of the mishandling of rural interests. The extent to which compensations from the citizenry, whose rights are being enhanced, ameliorate the adverse effects these regulations would have on present inhabitants of rural coastal economies needs to be understood before policy measures are enacted. A current example is the federal proposal to limit further, private property rights for endangered species habitat.

Second, the State has responsibility to nurture a learning culture around environmental recovery, the main public concern over the exercise of private property rights. The speed of learning within the current rural culture is slower than the speed of growth of global awareness. At the same time, close integration of rural enterprise with environmental recovery practices is a major opportunity to differentiate the outputs of the rural economy. Considerable success with awareness programs and rural support for conservation NGOs, such as Earthkeeping, and the Stanislaw Sandblasters in Alberta, has had a large impact on forest harvesting, riparian fencing of livestock and tillage. However, the privatization of research may be shifting the balance back to the market-driven production interests of large highly concentrated industries upstream of agriculture.

The third measure is regulation to prevent property owners from damaging others' interests. Great care has to be taken with all regulatory approaches because they may erode market-responsiveness and income beyond that which could have been obtained at others' expense. Solomonovich quoted earlier (Solomonovich *et al*, 1997), suggests that the minimum safe standards approach with this option could have destabilizing effects on natural resource enterprises in particular. Destabilization has certainly been coincident in the post war years with the increasing regulation of property rights. Regulations also prompt hacker-style behaviour to render ineffective or otherwise evade the purpose of the regulation.

The fourth measure is to disengage the access to resource rents from real property rights, as the condition for obtaining resource rents. Compliance with codes of practice is an example of a reorganization of rights. Contrary to regulation, codes of practice encourage completely new self-organized ways of doing business, without the rights-driven incentive for short-run profiteering. The Saskatchewan Agricultural Operations Act of 1995 is a code of practice approach. The ISO 14,000 series standards and Canadian Forest Industry Practice standards are also examples of substitution of management practices for real property rights as the means of acquiring rights to resource rents.

The fifth policy measure is for the Crown, in its agency role on behalf of the common property rights of the citizens, including future generations, to pay rural enterprises for maintaining amenities, countryside assets and the environment. Concentration in markets, addressed below, prevents rural enterprises from recovering costs of performing these functions through the market. This measure has far reaching consequences. It considers land, oceans and other natural resources to be jointly owned blends of public and private property rights.

A strong argument emerges for equalization style payments to rural local governments, along with subsidiarity style devolution of powers, and to health and education services to sustain government rural services at otherwise uneconomic scales of operation. Taxation protocols for expenditure and reinvestment in resource recovery and countryside amenities, including deferred production and harvesting could encourage enterprises to find ways to balance the market incentives with public interest. In the specific case of urban pollution dumped in rural space, handling charges and penalties on both rural and urban polluters should be kept out of general revenue accounts and designated for ecologically sound rural development activities.

6 Market Concentration: Second determinant of change

The rural economy is characterized by small and medium sized enterprises (SMEs), such as most farms, mainstreet commerce and artisan services and manufacturing. Their demand for inputs and demand for many of their outputs are relatively inelastic. Input and equipment suppliers and commodity handlers and processors are few and hold highly concentrated market shares. Taken together, these circumstances enable a wide range of opportunity for rent-seeking behaviour in markets, both upstream and downstream of the rural economy. These opportunities are fine tuned, in a rational way, by strategic investments, choices of technology and a wide range of loyalty discounts and anti-rival tactics. Economists call these kinds of markets imperfect. Market imperfection is viewed here not as market failure, but rather as a rent-seeking market design.

In this paper we focus on market concentration related to natural resource sectors. The consequences of market concentration have been well understood by governments and rural entrepreneurs since rural Canada was settled. The rent component of rural incomes is reduced. Land values are suppressed. The rural fiscal base is weak. The ability to cope with uncertainty is reduced. Equity-based investment is hampered. Undue pressure is placed on the environment to offset thin margins.

Governments have preferred to support the rural economy with special entitlements rather than address the competition issues. Rural incomes and natural resource rents have been subsidized. Uneconomic infrastructure is supported, including the use of transport and road subsidies. Special legislation has been enacted to enable countervailing institutional arrangements, including co-operatives, price pools, and marketing boards. Parastatal credit institutions mandated for farm and rural lending help rural enterprise and communities to avoid extinction. Concessions on royalties and taxes have restored some of the rents to rural corporate and farm operations.

Now, as trade liberalization challenges the nation state, these mercantile arrangements are weakened with predictable adverse results for the hinterland economy. For agriculture the results are worsened by the unexplained unilateral haste by Canada to dismantle income protection. Most of Canadian agriculture is marginal in the global context because of climate. The fundamentally instability of the rest of the resource economy is made more uncertain with ripple effects through the service and commerce sectors.

Market concentration in agricultural equipment, chemicals, biotechnology, food processing and financial industries is substantial and increasing. We look at several upstream and downstream markets to demonstrate the ubiquitous nature of concentration. It has impeded the political will of governments to prepare a broad spectrum rural policy to complement the production focus of policy to build competitiveness based on productivity in the rural resource sectors. We take agriculture, fisheries and forestry as examples.

6.1 Measures of Industry Concentration

Market concentration is usually empirically measured by using either concentration ratios or Herfindahl-Hirschman indexes (HHI) (Golan, Judge and Perloff 1996). Statistics Canada publishes six concentration ratios - C4, C8, C12, C16, C20 and C50 - for most Standard Industrial Classification (SIC) four digit industries. Each of these concentration measures, is the sum of the percentage market shares of the leading 4, 8, 12, 16, 20 and 50 enterprises in the industry respectively. The HHI index is the sum of the squares of the market shares of each of the leading enterprises, up to a maximum of 50 enterprises.

The two alternative measures defined above have their own relative merits. The HHI index is sensitive to the redistribution of market shares among the top enterprises. The concentration ratio is more intuitive and provides a simple indicator of the level of competition in the industry. In this paper, we use the C8 supplemented by the C4 and C20 ratios to compare trends in market concentration among upstream and downstream firms related to agriculture, fisheries and forestry.

6.2 Agriculture

Canada's agri-food sector includes farm-input supply, farming, food processing, wholesaling and retailing, restaurants, and institutional caterers, etc. Taken all together, it is Canada's largest industrial sector. Food processing by itself is Canada's third largest manufacturing industry. The upstream and downstream industries linked to agriculture stand in sharp contrast with farms when we look at the degree of market concentration.

Upstream Industries

Recently, there have been upward trends in the degree of concentration in the two most important upstream industries for agriculture, namely, the agricultural implements and chemical fertilizer industries.[6] After a long decline that lasted until the mid 1980s, the market concentration in the agricultural implements industry has been rising. In 1995, the leading eight enterprises in this industry accounted for about 70 percent of the market share. Market share concentration in the mixed fertilizers industry also has been rising since the early 1990s.

The agricultural chemicals industries are the most concentrated among the upstream industries for agriculture, with the leading eight firms accounting for more than 99 percent of the market share in both the chemical fertilizers and the non-fertilizer agricultural chemical industry. Concentration in the fuels industry has been rising steadily. The feed industry had the lowest and decreasing levels of market concentration among upstream industries. The concentration data for upstream industries is summarized in Table 1.

Table 1. Percentage Market Shares of the Leading Eight Enterprises in Upstream Industries for Agriculture (C8 Ratios in %)

Industry	1983	1990	1995
Feed industry	35.2	28.8	29.4
Agricultural implements industry	64.7	59.6	69.6
Petroleum products industry	89.2	91.5	93.7
Agricultural chemical industries			
chemical fertilizers[a]	..	..	99.2
mixed fertilizers	66.4	52.7	59.0
other agricultural chemicals[b]	..	..	99.7

[a]The market share of the leading four enterprises in this industry increased from 68.2% in 1983 to 85.5% in 1995.
[b]The leading four enterprises in this industry accounted for 94.2% of the market share in 1983, and for 86.7% in 1995.

---

[6] The value of shipments by the agricultural implements industry was $1,860 million in 1995 while the corresponding figure for the chemical fertilizers industry was $1,391 million. The mixed fertilizers industry was the third biggest with shipments worth $625 million in 1995.

Downstream Industries

Concentration in most food industries has been increasing. Among the industries with shipments of one billion dollars or more in 1995, concentration has increased in all except the canned and preserved fruit and vegetables industry where concentration has changed very little. The industries with rising concentration in this category include the poultry products industry, the dairy products industry, and the frozen fruit and vegetables industry. Concentration in the biggest food industry, namely, the industry producing non-poultry meat and meat products, has been rising after a long period of downward trend that ended in 1992.

In 1995, the leading eight firms in all food industries accounted for at least 50 percent of the market share while more than 70 percent of the market share was accounted for by the leading twenty firms in all food industries. In several industries (including the flour and cereal food industries; the vegetable oil milling industry; the biscuit industry; dray pasta industry; potato chip, pretzel, and popcorn industries; and the malt and malt flour industry) the leading eight industries accounted for 91 to 100 percent of the market share.

Among the beverage industries, market concentration has been greatest in the soft drink industry and the distillery products industry. The brewery industry exhibited little change in concentration while the market for the wine industry became less concentrated. In all beverage industries, more than 86 percent of the market was controlled by the leading eight firms in 1995. In all of them, the leading twenty firms accounted for more than 96 percent of the market in 1995. The C8 figures for food and beverage industries are summarized in Table 2.

Table 2. Percentage Market Shares of the Leading Eight Enterprises in Downstream Industries for Agriculture (C8 Ratios in %)

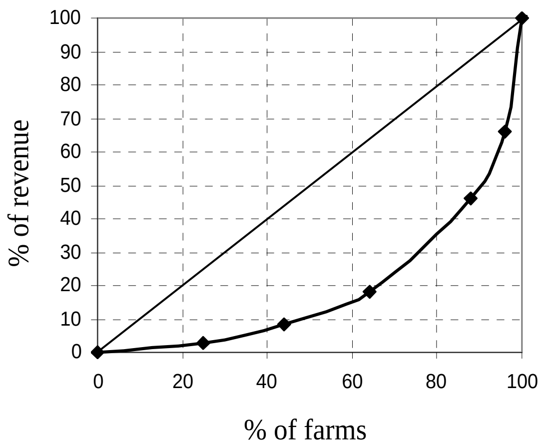
Industry	1983	1990	1995
Food Industries			
Meat processing industry			
poultry products	56.6	62.3	63.3
other meat and meat products	54.0	43.2	50.7
Fruit and Vegetables industries			
canned and preserved fruit and vegetables	53.4	58.1	57.6
frozen fruit and vegetables	82.4	83.8	88.6
Dairy products industries			
fluid milk	67.3	72.9	78.4
other dairy products	61.2	70.3	76.0
Flour and cereal food industries			
cereal grain flour	91.9	89.9	91.0
prepared flour mixes and cereal foods	95.8	94.9	92.0
Vegetable oil mills (excluding corn oil)	100	100	100
Bakery products industries			
biscuit industry	96.3	94.6	96.4
bread and other bakery products	56.5	56.7	65.1
Cane and beet sugar industry[a]	100	..	..
Other food industries			
dry pasta products	94.2	..	91.0
potato chip, pretzel and popcorn	97.6	95.1	96.0
malt and malt flour	..	..	100
Beverage Industries			
Soft drink industry	64.4	77.2	86.7
Distillery products industry	94.1	97.0	98.4
Brewery products industry	100	98.4	96.4
Wine industry	89.3	87.4	87.1

Farming

Concentration of agricultural production matters for income distribution because families own most farms (Peterson 1995). Peterson finds that agriculture in both the United States and Canada is becoming increasingly and steadily concentrated. There were more obvious and more rapid increases in concentration in the 1970s than in the 1980s, for all commodities in both the northern US and Canada. Although structural heterogeneity has been increasing in agriculture, the degree of concentration is no where near the level exhibited in related downstream and upstream industries (see below). Agriculture faces less competitive industries both in the upstream and downstream directions.

Data for the mid-1990s indicate that a quarter of Canadian farm operations[7] account for about 3% of total sales while the top 3.6% account for 34.9 % of total sales. This group of farmers is part of rural Canada I. The degree of revenue concentration as measured by the Gini coefficient of inequality amounts to 0.6 when all farm types are lumped together. See Figure 1. The degree of concentration is highest (Gini coefficients of 0.7) for cattle and fruit and vegetable farms. In the case of cattle farms, 59.7% of the farms contribute only 11.4% of the total revenue. And 49.2% of fruit and vegetable farms account for only 8.6% of total revenue for this group of farms. Greenhouse and nursery production is also highly concentrated. Dairy production is at the other extreme, with a Gini coefficient of only 0.3.

Figure 1. Lorenz curve for farm revenue distribution, Canada, 1995 (Gini coefficient = 0.6)



[7] There were 236,415 incorporated and unincorporated farms in 1995 (Agriculture and Agri-Food Canada 1997); 164,880 of these were unincorporated farms (Agriculture and Agri-Food Canada 1998). Data discussed in this paragraph and in Figure 1 do not match with those discussed below in the section on earnings because the data discussed in the latter section is for unincorporated farms only. Since the focus in this section is on market power and the transfer of rents through the market process, we will concentrate on all the producers, both incorporated and unincorporated.

6.3 Fisheries

Concentration has increased in the fish products industry over the period from 1965 to 1980. The leading eight and twenty processing firms accounted for, respectively, 53.5 and 67.6 percent of the market share. Market concentration in this industry has decreased since the early 1980s. The leading eight and twenty firms in the industry controlled 50.7 and 70.9 percent of the market, respectively, in 1995.

6.4 Forestry

The logging component, unlike farming, is industrially organized as well as using industrial inputs. It has the largest number of firms as well as establishments among all the industries discussed in this study. In 1995, this industry had a total number of 3,868 enterprises. However, the leading eight firms in this industry accounted for 31.3 percent of the market, while the leading twenty firms accounted for almost half (49.3 percent) of the market. The 720 sawmills and planing mills in 1995 are typical of these concentration levels. The C8 and C20 values for this industry for that year were 31.3 percent and 52 percent, respectively.

Concentration is highest in the pulp and paper industries, which have a much lower number of enterprises compared to the logging and wood industries. The leading eight firms accounted for 74 percent of the market share in 1995 in all paper, paperboard and building board industries. Concentration was lower in the pulp industry where the market share of the leading eight firms was 47.1 percent in 1995. Even this level of concentration places this sector at a downstream disadvantage globally.

6.5 Strategic options to address market concentration

Competition legislation

Market concentration is a global phenomenon. Rural economies have to deal with it. However, a growing and popular outcry in Europe and the United States is producing new competition legislation, not so much to reduce the market shares of dominant companies, but to investigate and punish inappropriate behaviour employed to damage rivals and therefore competition. The EU and USA have both upgraded their competition legislation with unannounced searches, incentives for cartel members to break solidarity, fines of up to 10% of global sales, and follow-up exposure to class action suits in the USA. The best current example is the prosecution of Coca Cola in Italy.

Canada is not part of this movement, perhaps with its preoccupation with attracting foreign investment. Yet Canada as whole experiences the same consequences relative to global markets as the rural economy does relative to national and global markets. US comparisons on agricultural earnings in the 1990s indicate that comparatively few rents are evident in Canada, signaling damaging consequences for farmers from their exposure to concentrated markets (Apedaile et al, 1995).

One could argue that it is no longer in the National economic interest to keep the rural economy stable. The National economy appears to have developed enough strength to withstand greater uncertainty in resource sectors, with the possible exception of equity markets, as reflected by the TSE. Therefore two overall actions are suggested for rural representatives at all levels.

The first overall strategic measure is to add rural influence to urban pressure on the Canadian Government to bring its competition policies in line with other global players. Rural alliances, especially by Rural Canada I, with consumer interests should be nurtured. Rural enterprises, especially those in Rural Canada I, have different interests from their highly concentrated agribusiness associates in this regard. Rural Canada I is extremely vulnerable to damaging anti-rival behaviour in global agribusiness markets. It does not necessarily share a common cause with diversified global conglomerates and wholesalers/retailers in the food sector, contrary to conventional wisdom in Canada which bundles them together as one agrifood sector.

This leads to the second overall strategy. The two senior levels of government need to reorganize the representation of interests around provincial and federal Cabinet tables. The appointment of a junior Federal Minister to represent rural interests is an example of new thinking. Rural stakeholders need to extend this thinking to dismantle the sectoral ministries and departments such as Agriculture and Agrifood Canada.

Many of the more troubling aspects of the major changes for agriculture are a consequence of conflicting mandates within this Department. Agriculture technology and development, rural development and food processing require political balancing not achievable within a sectoral mandate. The same applies to Fisheries and Oceans Canada. The alleged Coca Cola behaviour in Europe, a version of which was proven in the case of Safeway Canada in Edmonton some years ago (****Devine, 197?? His thesis ****) has persisted in rural Canada since the turn of the century. It led to the formation of pools and marketing boards, and seems evident in concentrated inputs industries. Concern over these practices is not evident in the continuing mercantile leadership of the two Departments for agriculture and fisheries.

A series of specific options are now outlined for rural enterprises. They arise from the nature of market structures. Concentration in Canadian markets expresses itself in the form of oligopolies, not monopolies. Oligopolies have the advantage of nearly unlimited differentiation around the edges of the standards they invoke. Oligopolies also carry with them consumers looking for slightly different products or services. SME suppliers are able to piggyback on oligopolies, because they are usually unable to discipline fringe players. A number of interesting strategic options arise. They divide into two groups, those for downstream markets and those for upstream markets.

Downstream markets

From the supply perspective of rural enterprises in downstream markets, changing tastes and preferences and new technologies require new products and services. The first strategic problem is how to know about the changes, and second, how to reorient production frequently and in time, when rural sees its identity in artisan work and is unused to fast changes.

The first option is for rural enterprises to intensify their organization to the level necessary for profitable control of their working relationships in their markets. This implies co-operatives or associations with discipline concepts similar to those of savings and credit circles. These grassroot organizations need to buy into remote metropolitan or export markets with contractual or agency relationships. The aim of this first option is to get up close and personal to demand forces.

The second option is for rural enterprises to contract to supply inputs to firms close to consumers. These associates can be carefully selected to enable a balanced contractual partnership, which bypasses costly transactions services. Reorganization of transactions involves new entrant tactics to enter transactions markets. New Generation Co-operatives are examples of a new and direct structured link from farmers to consumers. The same principle could be applied to the service sector, to fishing processing and wood products. Often it is possible to work in an amenity value to the market with trademarking. Separate retail outlets may be needed, or the product could find shelf space in selected established box stores or franchises like seafood restaurants.

Upstream markets

From the demand perspective of upstream markets, rural enterprises increasingly need more sophisticated industrial and information inputs, competitively priced. Consumers also demand diversity, safety and economy. The main problem for rural enterprises and consumers alike is territorial monopolies often contrived by industrial commerce. For example, grain elevators are traded to eliminate competition at grain delivery points. Now technical service agreements are tying farmers to seed and pesticides, not to mention vertical integration in feed, intensive livestock and meat packing. The strategic problem is how to sustain more mutualism in these upstream arrangements, not to ban them.

One option is for agriculture, forestry and fishing to become overt environmentalists. Farmers need to join forces with consumers for food safety and environmental stewardship. The strategic advantage lies in leveling the playing field for operating costs of artisan and industrial processing. The speed of major changes can be reduced to match intergenerational attrition in rural enterprises.

For example, genetically modified foods afford new opportunities for competitiveness of agriculture. They also increase the size of processing plants and concentrate the seed supply industry. Genetic manipulation extracts rents on behalf of mainly offshore shareholders, from rural natural resource enterprises, such as with the Monsanto technology service agreement for Canola. Long-term questions arise about the self-organising behaviour of co-evolving biological systems. The long-term safety interests of the public in food security and safety have not been demonstrated either by the biotech industry, farm organizations, universities, or the publicly funded research agenda in Canada.

Rural development

Rural manufacturing and assembly activities are often artisan by nature, selling into niche markets on the fringes of oligopolies, which by their nature will change as consumer preference changes. Many rural places also house utilities or telecoms substations and transport depots.

Commerce has been the traditional base for non-resource business, supplying inputs and finance, assembling commodities for sale, meeting consumer needs and providing a large share of the property tax base. Increasingly rural commerce is undertaken by `global' enterprise with aggressive rent-extracting market behaviour.

Strategic options are needed to reduce transactions costs, to strengthen the competitive position of service and goods producers on a regional and larger basis. Greater competitiveness could be accomplished with more cooperation through alliances and networking among professional services, with markets closer to final demand, and to access technology and finance. Provincial governments need options to reduce inter-provincial trade barriers, starting with intermediate manufacturing goods, professional services and transportation.

7 Productivity Change: Third determinant of change

Productivity is the third major determinant of the unsuitability of the organizational structure of rural Canada. Increasing productivity is a necessary condition for increasing incomes and wealth accumulation. Globalization stimulates productivity increases by diminishing complacency, by access to finance and inputs, and by clearer market signals.

Broadly speaking, there are three sources of productivity growth: improvements in the degree of productive efficiency, technological progress, and output scale effects. Although empirical studies more often than not assume away the first and /or the third components, these components entail different managerial and policy implications.[8] Technological progress and output scale effects have probably been the most important sources of productivity growth in agriculture.

The nature of technological change also has important implications for the distribution of income as well as rural employment. Technological progress in agriculture has brought about the substitution of machinery and purchased inputs for labour. These inputs are industrial and so have the effect of industrializing agriculture. Expenses on non-farm inputs now account for more than three fourths of the value of agricultural output. This has not only raised the elasticity of farm outputs against an inelastic demand for agricultural outputs, but it has also made farm incomes more susceptible to changes in macro-prices (exchange rates, interest rates, wage rates). These now have an income effect equal to or greater than that of output prices and deficiency payments.

---

[8] There is also another shortcoming in commonly used measures of productivity growth. Conventional productivity studies, like most of the rest of empirical economic analyses, have concentrated on marketed inputs and outputs to the neglect of undesirable outputs or pollutants (e.g. soil erosion, surface and groundwater pollution). There is a growing interest in methods for incorporating undesirable outputs into productivity analysis. See, for example, Hailu (1998) for an introduction into this literature and for environmentally sensitive input distance function and nonparametric analysis of productivity growth in the Canadian pulp and paper industry. Repetto *et al* (1996) also derive adjusted index number measures of productivity growth for U.S. agriculture.

As a result of the input substitution that has occurred, aggregate input use in Canadian agriculture has declined at an annual rate of –0.02% in the period from 1948 to 1990 while the levels of output and productivity have more than doubled during that same period (Veeman and Fantino 1994). Veeman and Fantino estimate the average annual rate of total factor productivity growth in agriculture to be 1.89% for the period from 1948 to 1990.[9] This rate of productivity growth compares favorably with growth rates in other industries. For the pulp and paper industry, for example, the comparable growth rate has been 0.41% per year for the period from 1959 to 1994.[10] Kant and Nautiyal (1997) find that productivity growth in the Canadian logging industry has, on average, been negative during the period from 1963 to 1992.

The pattern of productivity growth in rural industries seems to have been unfavorable to rural economies. The distribution of gains from productivity change depends on the nature of the market in which the producer operates. Agriculture like most other rural sectors is composed of mainly atomistic SMEs, while related downstream and upstream industries are characterized by a high level of market concentration (See discussion in previous sections). Therefore, rural economies are unlikely to be able to retain the benefits of improved agricultural productivity as the latter drives output prices down dissipating these benefits to other industries. Although logging and pulp and paper industries are much more concentrated rural industries, the trends in productivity growth in both have been negative or much less successful as discussed above.

This productivity information applies to about 25% of rural employment. Productivity data for the large service sector and fisheries have not been found. With about 75% of rural employment now in services, productivity studies for rural commerce, personal services and public services have become urgent. The three sources of productivity, productive efficiency, technological progress and scale effects seem to be weaker in this service sector. Productive efficiency is reputed to be improving in the public service sector, but is less obvious in private rural enterprise. Technological progress in the labour-absorbing service sector is generally labour-saving. Productivity improvements from job reorganization would seem to be offset by more disguised unemployment. Seasonal employment patterns have always been a feature of rural life. More flexible part-time and temporary jobs have assisted the growth of pluriactivity, accounting for a large part of the rural standard of living in the rural hinterlands to towns and villages. The absence of output scale effects is closing rural public services such as postal services, schools, hospitals and government offices. Commerce and most personal services operate under capacity.

Consequently the two problems with the major changes in productivity are the uneven sector distribution and the atomistic supply side for family farms, fisheries, commerce and small and medium sized enterprises of all sorts. It is just not clear that the labour

---

[9] These estimates are obtained using Tornqvist index number formula and, therefore, incorporate the effects of the different productivity growth components described above.

[10] When the effects of output scale effects are removed, the results indicate a decline in productivity growth at the rate of –0.06% per year. When pollution abatement is taken into account, however, productivity due to improvements in technical efficiency and technological progress was found to have been growing at the rate of 1.00% per year (Hailu 1998; Hailu and Veeman 2000).

intensive sectors are sharing the productivity change of the natural resource sectors. When productivity does improve, uncompetitive markets reward rural labour and equity at less than their contribution to marginal productivity.

7.1 Strategic options

Sustained increases in productivity require the rural economy to compete on the basis of the usefulness and value of its outputs, not on the cheapness of its resources and labour and its tolerance of lower environmental and social services standards.

Rural enterprises have always chosen productivity as their first option. Hard work is regarded highly in agrarian cultures. Agricultural policy has invested heavily in research and extension. More recently, efficiency, technical progress and scale have been emphasized by all sectoral departments of government, as the basis for global competitiveness. The cost-cutting feature of this approach continues to place a lot of pressure on both family and hired labour, the environment and social safety nets.

For agriculture, the strategic issues to be addressed relate to the ability of this industry to translate productivity gains into earnings. Therefore, many of the strategic options relating to market concentration mentioned above are also relevant here. For the forest industries, there appears to be a need for increased investment in research and development. The forest industry can consider the option of outsourcing multiple use management and silvicultural activities to community cooperatives, private farms and local multiple use interests, while retaining harvesting rights. The service sectors need further specialization of functions and consolidation within networks of rural villages and towns. The fisheries appear to be irreversibly launched into industrial organization of fishing. Disabled coastal communities, seeking outside investment in enterprises unrelated to fishing, need strategies to wind down into labour intensive and territorially extensive amenity economies providing rest and recreation.

The first strategic option for agriculture is already the choice of government. It is to concentrate on Rural Canada I with a strong focus on competitiveness. This policy is resulting in a tug of war between productivist politics and the safety and environmental interests of the public on matters of genetically modified plants and feed additives. The competitiveness policy is also heavily based on exemption of agriculture from labour standards.

What is missing in this `agrifood' strategy, is a policy for sustaining and retaining productivity improvements for the agriculture of Rural Canada II. These farmers and their villages are the countryside, or landscape amenity in eastern Canada and British Colombia. Their farming activities are not replaceable. On the Prairies, Rural Canada II in agriculture is going to continue to decline, because scale of output and technology are such powerful drivers for productivity in plant and livestock commodities. The issues in Western Canada are much more about social choices about the merits of one structure of production versus another, and about equity and fairness. Ethical issues are also involved, when the agrifood policy knowingly harms a definable group of people with quasi-social cleansing consequences, promoted in the press as `help for farmers'.

Regionally specific policy options are needed at the interface between the two agricultures and the two fisheries. The productivities of Rural Canada II and I are interdependent, because large operators need the licenses and land of other active productive operators. The land and catch license markets allow growing operations to rent or buy from other property rights owners. The speed of concentration does not appear to be hindering productivity improvements.

However, this process of increasing productivity for rural Canada I steadily reduces the productivity and competitiveness of rural Canada II. It is pushed toward marginalization as it cedes its property rights to Rural Canada I. This leads to the second strategic option, which solves some problems for rural Canada I agriculture and fishing and could resolve the productivity problems for rural Canada II.

The second option strategically shifts the basis for productivity away from scale-biased technology to scale-neutral productive efficiency. This is a policy option designed to extend the trend to standards-based policies for the forest industry to fisheries, agriculture and related food industries. This policy approach would acknowledge the productivity effects of sound environmental and labour practices in the competitiveness equation for market purposes. Canada would have to argue strongly, at the current WTO round of discussions, for global application of the standards approach to market access for food and nutriceuticals. Human rights issues would have to be involved, given the labour practices in the factories of some of Canada’s major food competitors, and the treatment of farm and factory labour behind competitive food imports and farm inputs.

This dimension of the level playing field is a matter of great concern to rural Canadians. We argue that further trade concessions should be contingent on implementing ISO 14,000 style standards for intensive livestock operations and abattoirs, fish plants, agricultural chemicals and fertilizers, biotechnology, horticulture, food processing and nutriceuticals of all kinds.

A third option is available for each SME and rural community. Facilitators could be engaged to help set up a learning culture oriented to productivity, appreciation of human potential and social cohesion. Globalization has greatly improved the opportunities for learning. The main technological innovation is the Internet. It allows a plurality of interests and associations to be viable in rural communities which used to be too closed and small to tolerate diversity.

A fourth option is to establish rural productivity enhancement units within local, provincial and the federal government. This option is a slightly narrower version of similar units set up by the British government in the past year. They acknowledge the complexity of productivity issues which cross traditional institutional and sectoral boundaries. This approach dovetails with the earlier option of reorganizing government to replace sector ministries and departments with new structures. This unit concept can be implemented within enterprises and networks of entrepreneurs to turn attention toward performance and away from territorial monopoly practices as the basis for development.

The last option is also aimed at rural communities and collections of enterprises. The rural economy needs to reorient itself to get closer to the final demand for goods and services. A more demand-driven rural economy stimulates productivity. This means getting out of the business of generic resource commodities and into more highly differentiated outputs with supply chains controlled by rural interests all the way to the consumer. These outputs include intermediate industrial inputs for the global economy and consumer goods and convenience services.

Most of Canada's rural economy is well placed relative to metropolitan markets. Value-added initiatives must involve highly differentiated outputs rather than generics simply transformed into a new generic form, such as barley into ethanol.

8 Earnings: Fourth determinant of change

The last of the major elements accounting for the unsuitability of the rural organizational structure in the new economy is earnings. The distribution, composition and sources of rural earnings are structural consequence of the first three major elements; property rights, market concentration and productivity. Earnings reflect the success of the rural economy as it self-organizes with the global economy. We only have information of farm earnings to report here.

Earnings by rural households and business are restructuring to include many more sources of revenue and a greater proportion of wages. Complex dynamics are at work to increase the concentration of earnings at the top and the number of households at the bottom of the distribution of households. For example, the middle commercial farms with sales in the $200-500,000 range, the family farming backbone of rural Canada as it is understood by all Canadians, is shrinking and being weakened. This group of farms is part of Rural Canada II. Their enterprises appear not to be resilient enough to self-organize in the face of global restructuring transmitted by harmonization of trade rules. In the meantime farms of rural Canada I appear to be successful, reorganizing and making the intergenerational changes needed to sustain optimism and aggression in markets, including especially, land and input markets.

There were 164,880 unincorporated farms in Canada in 1995[11]. About half (45.9%) of these farms had farm revenue of less than $50,000. The remaining 20.8% and 33.3% of the farms had farm revenues of $50,000-$99,999 and $100,000 or more, respectively There was little difference in the average income levels for the first two revenue classes, $48,085 and $49,205, respectively. The average income level for the farms with revenue of $100,000 or more was $72,929.

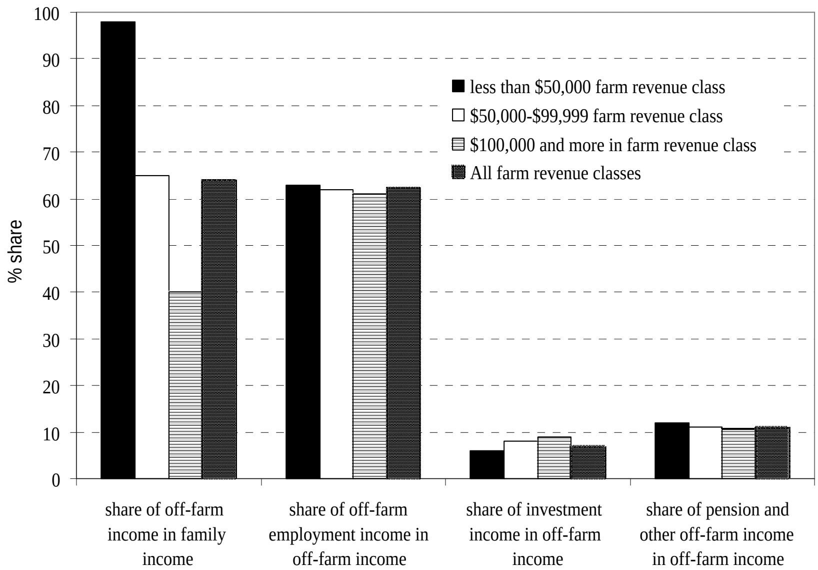
Overall, about two-thirds (67.5%) of the average farm family income in Canada in 1995 came from off-farm sources. Perhaps this feature alone of the major change in structure of earnings upsets farm households the most. This feature could be interpreted to mean that the `human' right to a `decent' income from agriculture is frequently viewed as a substitute to real property rights. However, the growth in rural jobs has been the major reason farm households have persisted as well as they have in the face of global change. Off-farm employment, investment income, and pension and other sources contributed, respectively, 64.8%, 13.2% and 22.1% to off-farm earnings.

[11] The data for revenue and income data discussed here is from Agriculture and Agri-Food Canada (1998), unless indicated otherwise. It covers unincorporated farms only.

There was substantial variation among revenue classes as far as the sources of earnings are concerned. In particular, the incomes of small family farms (i.e. the farms in the first revenue class which accounts for 45.9% of farms) came almost entirely from off-farm sources, which accounted for 96.9% of the farm family income for this category. The share of off-farm income was 69.5% and 39.8% for the second and third revenue classes.

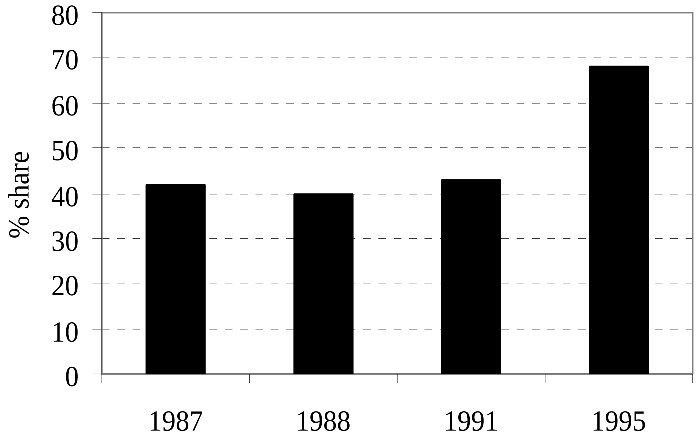
However, there was much less variation in the composition of off-farm sources of family incomes. The contributions of investment income to off-farm earnings increase slightly [11.2 to 14.5 to 16.4%], while those of off-farm employment [66.4 to 63.3 to 62.3%] and pension and other sources [22.4 to 22.1 to 21.3%] decrease slightly, as we move across the farm revenue classes. See Figure 2a.

Figure 2a. Sources of farm family income, Canada, 1995



The contribution of off-farm sources to farm family income has been rising. In the late 1980s and early 1990s, off-farm sources accounted for less than 50% of average family income. This was true for all farm types, except beef farms (Barnard and Grimard 1995). Apedaile *et al* (1995) find that in 1990 pluriactive income contributed 46% and 34% of income for Western and Eastern Canada, respectively, for small farms as represented by the 5th vingtile of gross agricultural sales. The comparable figure for bigger commercial farms (represented by 15th and 16th vingtiles) stood at 12% in both Western and Eastern Canada. These shares for the small farms (5th vingtile) had increased by 23% and 12%, respectively, compared to their levels in 1987 (Apedaile *et al* 1995). Bollman, Whitener and Tung (1995) indicate that increases in off-farm income have prevented the deterioration of farm families incomes relative to those of nonfarm families. In the period from 1991 to 1995 alone, the contribution of off-farm earnings has grown from 44.2% to 67.5% of farm family incomes. See Figure 2b.

Figure 2b. Changes in share of off-farm earnings in average farm family income



8.1 Strategic options for earnings

Agriculture is the arch-typical primary resource sector. The dynamics of its earnings structure may be inferred to reflect those of the other natural resource sectors of rural Canada. These sectors are all experiencing globalization, erosion of property rights, market concentration and scale biased cost-saving productivity increases. In a sense all options presented above aim to have a positive effect on rural earnings.

Several strategic options specifically focused on earnings are also available. The first is to improve the mobility of rural labour and financing capability within the rural economy. The increasingly pluriactive nature of farm family income sources clearly indicates the need for going beyond the traditional sectoral policies as a means for enhancing rural well being. These are mainly directed to Rural Canada I, have the effect of worsening the rural distribution and rural urban distribution of income, and exclude almost 75% of rural households.

Rural employment and finance policy needs to be combined in one policy and administrative structure of government. This is the other major focus for government restructuring after getting over the need to administer economic sectors. It means diminishing the role of treasury, replacing the rapidly disappearing banks, inserting an arm's length between the regional economic agencies and party politics, and strengthening the continuing education mandate and resources of educational institutions. Sustaining rural residential property values and service infrastructure also enhances mobility.

The second strategy is not an option. The federal and provincial governments need to carry out a comprehensive review of the impacts of its aboriginal, macro-economic, communications, transport and environmental policies on rural well being. It needs to institute a rural impact screening process for all proposed legislation.

The third strategic option is to improve the demographics of the rural economy. Positive selection associated with the out-migration of youth may be countered with an active recruitment package involving a partnership of the three levels of government. The aim is to attract young workers and entrepreneurs with financial and life-style incentives. The strong performance of metro-adjacent rural places can be extended further into the rural hinterland now that secondary roads and communications are improved. A shift of infrastructure dollars to secondary roads is an investment in the attractiveness of rural locations to business and of rural suppliers to metro markets.

Current remote area income tax breaks could be redesigned to include more of rural and remote Canada, with particular emphasis on the treatment of capital gains for SMEs operating beyond the metro-adjacent areas. Larger personal income tax exemptions for rural residents would attract retirees and improve the viability of small town and village mainstreets and public services.

This option resolves several serious problems with local smokestack chasing. Currently tax strapped rural municipal governments are the only level of government providing incentives. These are quite destructive of rural cohesion in their `rob Peter to pay Paul' effects. These local incentives are also dominated by a desperate need to increase the local tax-base, creating a distress market for outside investors seeking cheap labour and a tolerant attitude to pollution. Reform of municipal finance is also indicated.

The fourth strategic option for earnings is to add a pro-poor component to all rural development initiatives. The objective is to arrest and reverse the process of social exclusion and economic marginalization by ensuring that all the above options are at least neutral to marginalization and inclusive for women and minorities.

This option requires local administrations to include private or cooperative rental housing in their development plans to help young families enter the labour market and begin to acquire property rights as a basis for higher and more secure earnings. Rental housing complements mobility policies by improving the match between temporary employment and housing. Local administrations also need to pool resources for child care and family mediation services.

The last strategic option is a palliative care program for villages deciding to close down. These places have often become entirely part of Rural Canada III and unable to sustain services. The poor with a high proportion of aged people and little or no commerce or social services or fire protection populate these villages and hamlets. They have no tax base. They depend on county, township or MRC administration. This program involves property write-downs and special transportation arrangements for medical and social services. The close-down takes place over a period of up to five years. The program extends to rehabilitation of the site and a commemoration structure.

9 Conclusion

All Canadians could benefit from a range of strategic policy options for the rural hinterland.

The first set of options aims to restore real property rights and to enhance intellectual property rights for rural Canadians. The problem has been that the Crown mixes its mercantile interests with its responsibilities as agent for the civil society on behalf of the common property rights of all Canadians. The strategy offered in this paper is to disengage real property rights from the rights to resource rents using codes of practice. This strategy would be supported by gradually dismantling minimum safe standards approach to environmental issues with expansion of the environmental learning culture, already being established, and payment for securing the environment.

The second set of options addresses market behaviour. This strategy is for rural stakeholders to ally themselves with consumer interests and environmental lobbies to pressure the Federal Government to modernize its competition policy in line with the United Sates and the European Union. Complementary strategies are needed to restructure the sectoral approach to governance of the rural economy by disbanding sectoral departments and replacing them with governance by social and economic objectives. Then safety and environmental standards, for which economies of scale run out within the size ranges of SMEs, could level the playing field for industrial and artisan competition in food processing.

Several rural development options would go some way to making the rural economy more demand-driven by closer association with metropolitan markets and manufacture of highly differentiated final forms of consumer services embedded in consumer products. Serious attention is needed to reduce interprovincial trade barriers, which raise the production costs of rural SMEs to protect urban SMEs and jobs.

The third set of options concerns productivity. The conventional research approach to productivity continues to be effective. The natural resource sectors face difficulties in that growing complexity is reflected in differential scale effects of organizational co requisites with technology on different parts of the operations. One option for the forest industry is to outsource its forset management functions, which are reputed to enjoy few economies of scale, while retaining the harvesting function with substantial economies. This would give a degree of stability to local forest dependent jobs, and local commerce and services through contractual restructuring of property rights.

The damage of the scale bias of productivity for agriculture on Rural Canada II farmers could be reduced by ISO 14,000 style standards, which may be more scale neutral. Value-added enterprises should be chosen strategically to differentiate the generic commodity feedstock to improve the demand side motivation for productivity.

The two senior levels of government could finance productivity enhancement units for the whole economy, with the rural economy as an explicit part of the mandate. The concept involves support to idiosyncratic local R&D initiatives with rural firms, local governments, universities and networks of rural entrepreneurs, to shift the focus away from cost saving and anti-social business practices to new demand-driven activities.

Five options are available to improve the level, quality and distribution of earnings. The first is to subject all public policy to scrutiny for its impact on rural earnings and wealth accumulation. The second is to enhance the mobility of rural financial and human capacity. The third is to put in place a partnership of the three levels of government to enhance the demographics of rural areas. The fourth is to couple a pro-poor component to all options for rural Canada. The fifth is to put in place a program of palliative care for communities choosing to close down.

All these options are available to construct strategic combinations of policies according to the circumstances in each rural place, and for eastern and western Canada. None of the options involve closing the rural economy to globalization. Few of the options require a social choice about the organizational structure of the rural economy. Rather the options address the underlying processes, which drive the wedge between the self-organization of the rural economy and the new economy.

Most of the options are based on well-established norms for the role of property rights in a free enterprise economy, and for competition in markets. The options reflect the growing global awareness of the need to balance productivity with social and environmental responsibility for the long run security of all citizens. This balance is the foundation for competing, as a Nation, globally.

If rural matters, then serious public debate is needed about how to make the hinterland a stronger equal partner in the national economy as it struggles for sovereignty. In this light these options may be considered as parts of several strategic combinations of policy and local initiative needed to realize the partnership for all three Rural Canadas. Federal and provincial policy makers are not mandated by rural or urban Canadians to sacrifice the rural hinterland as collateral damage in the global competition to restructure nation states.

10 References

Think Rural

Davila

Ricardo

Devine

Solmonovich et al 1997

Stabler 199?

Scientific American 1999?

Apedaile, L., C. Barnard, R. Bollman, and B. Calkins. "The Structure of Agricultural Household Earnings in North America: Positioning for Trade Liberalization," *Can. J. of Agri. Economics*, special issue on Farms, Farm Families and Farming Communities, 1995, pp. 91-114.

Agriculture and Agri-Food Canada. *An Economic Overview of Farm Income by Farm Type*, Prepared by Economic Analysis Directorate, Policy Branch, February 1997.

Agriculture and Agri-Food Canada. *Farm Income, Financial Conditions and Government Assistance: Data Book*, Prepared by Economic Analysis Directorate, Policy Branch, February 1998.

Benson, Marjorie L. *Agricultural Law in Canada 1867-1995 – With particular reference to Saskatchewan*. Canadian Institute of Resources Law, Calgary. May 1996.

Barnard, C.H., and J. Grimard. “Financial Structure of Canadian and U.S. Farms, 1989 and 1991,” *Can. J. of Agri. Economics,* special issue on Farms, Farm Families and Farming Communities, 1995, pp. 79-90.

Bollman, R.D., L.A. Whitener, F.L. Tung. “Trends and Patterns of Agricultural Structural Change: A Canada-U.S. Comaparison,” *Can. J. of Agri. Economics*, special issue on Farms, Farm Families and Farming Communities, 1995, pp. 15-28.

Bromley, Daniel. “The Environmental Implications of Agriculture. Staff Paper Series N0. 401, Agricultural and Resource Economics, University of Wisconsin-Madison, 1996.

Bruce, John W. “Review of tenure terminology,” *Tenure Brief*, No.1 (July 1998): 1-8.

Hailu, A. Environmentally Sensitive Analysis of Economic Performance: Productivity and Efficiency in the Canadian Pulp and Paper Industry, 1959-1994. PhD Thesis, University of Alberta, 1998.

Hailu, A. and T. S. Veeman. "Environmentally Sensitive Productivity Analysis of the Canadian Pulp and Paper Industry, 1959-1994: An Input Distance Function Approach," *Journal of Environmental Economics and Management*, 40(2000):251-274.

Golan, A., G. Judge, and J.M. Perloff. “Estimating the Size Distribution of Firms Using Government Summary Statistics, Working Paper No. 696, Department of Agricultural and Resource Economics, University of California at Berkely, 1996.

Kant, S. and J.C. Nautiyal. “Production structure, Factor Substitution, Technical Change, and Total Factor Productivity in the Canadian Logging Industry,” *Canadian Journal of Forestry Research*, 27(1997): 701-710.

Marchak, M. Patricia. “Who Owns Natural Resources in the United States and Canada?” Working paper No. 20, Land Tenure Center, University of Wisconsin-Madison, October 1998.

Natural Resources Canada. *The State of Canada’s Forests – learning from history*. Natural Resources Canada, Ottawa, 1997.

Peterson, R.N. “The Concentration of Agricultural Production in Canada and the United States Since 1970, and Ortega Parameter Analysis,” *Can. J. of Agri. Economics*, special issue of Farms, Farm Families and Farming Communities, 1995, pp. 47-68.

Repetto, R., D. Rothman, P. Faeth, and D. Austin, Has Environmental Protection Really Reduced Productivity Growth? World Resources Institute, Washington, D.C., 1996.

Statistics Canada, Catalogue No. 31-402. *Industrial Organization and Concentration in Manufacturing, Mining and Logging*, Ottawa, 1980.

Veeman, T. and A. Fantino. “Empirical Measures of Multifactor Productivity in Canadian Agriculture,” in *Measuring Agricultural Productivity and Related Data for Regional, National and International Comparisons,* Agriculture Canada – Policy Branch, 1994, pp.108-117.