Scientific Knowledge and Rural Policy: a long-distant relationship*

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Abstract

This paper examines the extent to which social science evidence is considered by community leaders in small towns and rural areas. It uses secondary analysis of 18 transcriptions from interviews in rural regions within two Canadian provinces to examine what types of support (if any) are used by respondents to justify their claims and assess the extent to which they depend on systematically collected and analyzed evidence. The results indicate that the respondents seldom provided justification for their claims and when they did, scientific evidence was infrequently used. Instead, the respondents most often used examples from their personal experience or public meetings as support. Comparative analysis of the two rural region showed that the pattern of support was different in each – with respondent from BC relying more on personal examples and those from NL relying more on public presentations or the internet. The results suggest that much work needs to be done to make social science evidence available and useful to those in small towns and rural places. According to those results, the most strategic way to begin is through existing networks, community groups, and local examples.

Introduction

With the emergence of the new public management "revolution" in the 1980s and 1990s, scholars argue that evidence-based policy is now a cornerstone of the policy process (Boin, et al., 2006). It is suggested that the social sciences have become "an indispensable mode of discourse in the policy arena," insofar as research helps legitimate and guide government practices (Weiss,

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2

1995: 147). The purpose of such evidence-based policy is to provide a "post-ideological" approach to governance, in which "evidence would take centre stage in the decision making process" (Davies cited in Sanderson, 2002: 3).

At the same time, Canadian scholars are now publicly denouncing the federal government over its disregard for scientific research. Andrew Miall, a geologist at the University of Toronto and president of the Royal Society of Canada's Academy of Science, stated that he and other researchers are "very concerned" about the dismantling of scientific advisory bodies and individual dismissals of senior researchers (Munro, 2008). The former chief statistician of Statistics Canada, Munir Sheikh, resigned in July of 2010 following a government decision to abolish the mandatory long-form census (Campion-Smith and Brennan, 2010), and the Canadian government has established a "media protocol" that prevents environmental scientists from commenting to the press without clearing them with government media relations officials (Bagnal, 2012). Initiatives such as these raise questions about the changing conditions for evidence-based policy.

In this article, we examine the evolving relationship between the social sciences and rural policy. Unlike most of the current literature on the topic, we pay particular attention to this relationship in rural and small town circumstances by asking "How do municipal and small regional organizations perceive and integrate social science research into their policies, programs and practices over time?" We approach this from an historical perspective, arguing that the sources and uses of social science research are not consistent through time. Instead, the types of information used in policy preparation are partially shaped by the prevailing social order. This emphasis on social order draws from the Regulation School of political economy, which "stresses that economic activities are socially embedded and socially regularized and that stable

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3

economic expansion depends on specific social modes of economic regulation" (Jessop, 2008: 24). We suggest that rural policy activities are socially embedded and socially regularized within a specific social order, and this social order is composed of changing economic, technological, political and ideological conditions. These dynamics are at work within and among national, regional, and local levels.

Our research questions emerge directly from this perspective. At the general level we ask: "In what ways have the sources, nature, and use of social science knowledge shifted in the face of changing circumstances?" Answering this question requires us to address the following more specific ones: "What are the primary sources used by local and regional governance agents for making decisions about their future?"; "How has the legitimation of various types of information shifted?"; and "How is the information used (or not used) for decision-making?"

This article is divided into four sections. The first reviews the historical trajectory of rural policy in Canada. We argue that rural development has evolved from an "old regionalist" social order that emphasized top-down industrialization to a "new regionalist" order that involves multiple stakeholders and community-based development. In the second section, we use existing literature to develop a framework for analyzing the relationship between science and policy as it has evolved within this new order at the local level. We conduct this analysis in the third section by using interviews with local policy-makers, finally concluding with a discussion of the results and implications for research and policy-making in general.

1. Changing Social Orders

Human society in Europe was organized around insights drawn from theology and metaphysics prior to the Enlightenment. This particular social order gave way to new forms of

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4

positivist thinking that emerged in the 19th century. Positivists strove to build "a smooth, efficient industrial civilization, established and managed not by the dictates of political interests, but by the dictates of genuine knowledge: the findings of the modern natural and social sciences" (Torgerson, 1986: 34). As this perspective gained influence, the types of information used in governing society shifted to some extent: to those favouring technological, intellectual, ideological, political, natural, social, and historical justifications over theological and metaphysical ones.

Our analysis begins with recent historical developments in the prevailing social order within OECD countries, with strong emphasis upon Canada. The post-war social order was typified by a highly industrialized production, with manufacturing serving as the core productive base along with resource and staples extraction. This period has variously come to be defined as a Fordist regime of accumulation, Keynesianism, or an embedded liberal order (De Angelis, 2000; Sears, 1999). The state was a key actor in the development of Fordism, fostering industrial-scale production "either directly through actions such as state-mediated labour relations or indirectly through the impact of the national policy in supporting the intensive period of growth…" (Smardon, 2010). This strategy entailed the development of a "broad welfare state" that fostered social reproduction through the nationalization of key sectors including healthcare and education, with this welfare state reaching its "greatest extent" roughly from 1945 to 1975 (Sears, 1999: 92).

In Canada this took forms that reflected the commodity focus of the national policy. This policy emerged from Canadian historical roots in colonialism and the legacy of resource-dependent trade that has characterized development since then (Innis, 1995). During the 1940s and 50s this was manifested as an hierarchically-organized, corporatist social order that

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5

emphasized top-down models of policy-making and government intervention. Regional policy[1] was consistent with the Keynesian approach to development, characterized by a shift from extensive, widely distributed resource industries to new capital-intensive, largely foreign-owned resource industries supported by a rapidly expanding public sector and the separation of economic and social policy (Fairbairn, 1998:10).

This "old regionalist" order began to fragment in the late 1960s and early 70s under pressures of globalization, outsourcing, deregulation and global macroeconomic crisis (Duménil, 2010). The resulting fragmentation of centralized state-labour-industry relations led to increasing global competition and economic diversification (Reimer and Markey, 2008:5). This transition also entailed a shift in organizational forms at the regional and rural level. Highly centralized, top-down institutional and administrative structures of the old regionalist period were gradually replaced by decentralized frameworks of implementation. State restructuring involved the downloading of certain responsibilities from the nation-state to regional, provincial and municipal governing bodies. This restructuring was not uniform across all regions. In the Canadian province of Québec, for example, new administrative organizations and structures emerged in response to these changes, whereas regional administrative structures were not significantly changed in the province of Alberta (Reimer, 2010).

This emergent "new regionalist" social order is more flexible, diverse and horizontally structured than its old regionalist counterpart, with multiple stakeholders involved in the governance of rural policy-making and government intervention (OECD, 2006). Wallis (2002:5) presents several key words as a means of drawing a distinction between old and new regionalism

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[1] Unlike in Europe, regional policy in Canada was directed to sub-national groups – most often, groups of provinces with similar geographical and historical legacies (e.g. the Atlantic Region, the Prairies, the North).

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6

(Table 1). Adherents of new regionalism emphasize economic diversity, flexible labour and

production processes, along with institutions and policies that can adapt to shifting market trends

with greater agility.

TABLE 1: Differences between old and new regionalism

Old regionalism	New regionalism
Hierarchy-based system	Network-based system
Government	Governance
Structure	Process
Closed	Open
Coordination	Collaboration
Accountability	Trust
Power	Empowerment

Source: Wallis, Allan. 2002. "The New Regionalism: Inventing Governance Structures for the Early Twenty-First
Century." www.miregions.org (August 23, 2011).

The period of transition from old to new regionalist social orders was also marked by the

transition from local (municipal and county-level) governance of a relatively informal and

diverse nature to one that was more structured – following legalistic and bureaucratic principles

of organization and authority. Evidence from the many case studies of these various locales

suggests that they were previously governed on an informal basis, but with the significant

influence of religious institutions or private corporations (Lucas and Tepperman, 2008). The

Canadian state identified administrative regions through provincial legislation regarding the

structure and organization of these places – from municipalities, to hamlets, towns, and

unorganized regions, but it was largely absent from the day-to-day decisions of the residents.

Information regarding the organization of these communities, the management of local affairs,

and the conduct of businesses was largely channelled through the churches and businesses

operating in the communities. The radio (especially the state-supported Canadian Broadcasting

Corporation) dominated the mass media – providing a common source of news, weather, trade,

advice, and social standards for the rural population (Halhed, 1981).

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7

As state institutions came to dominate Canadian society, the local organization of rural communities shifted slowly from governance based on loosely-structured market, associative, or communal norms to one that emphasized a more standardized and centralized (bureaucratic) form (Reimer et al., 2008). This was facilitated by the emergence of new modes of communication and transportation that made it easier to learn from those who lived far away and for government and corporate organizations to pass on information to many people in widely dispersed regions.

This was the period during which the development of scientific research and the legitimation of technocratic approaches to economic, political, and social challenges were gaining ascendancy. It was a time when government supported universities and research centres produced some of the major innovations in agriculture, technology, and consumer products that drove much of the national growth (Granatstein, 1986). It was also the period when the state developed and promoted an economic policy that championed efficiency in production, mechanization of the natural resource industries, the standardization of products, and larger corporate enterprises (Canada, 1969).

The new mass media played an important role in the transformations that were taking place. Information and recommendations for farmers were broadcast regularly on rural radio; the research and products emerging from government and corporate research centres were systematically disseminated through printed materials and outreach agents; and workers from research centres and universities were encouraged to meet directly with producers in forestry, fishing, and agriculture. New policies were established regarding the structure of these resource industries and a large number of government employees were used to inform and direct the

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8

producers in the latest norms, management techniques, and strategies for growth (Fairbairn, 1998:7).

As the fiscal pressures grew on the state apparatus, the problems of mega-projects became apparent. Neoliberal ideology grew and state support for research and face-to-face communication declined. More recently, information distribution shifted to the internet – an infrastructure that was aggressively extended with public support to rural and remote places (cf. http://www.canarie.ca). Local communities becameresponsible for their own reorganization and economic development – a requirement that traditionally had been the responsibility of provincial and federal governments. In this new environment, communities and regions are now expected to inform themselves of all levels of governance, from local to international. Local producers and employees, service providers, and citizens are encouraged to use the internet to learn about changing conditions, services, and strategies from across the nation and around the world even though the availability of inexpensive and reliable broadband is limited in many rural locations (Theckedath and Thomas, 2011; Wallis et al., 1998).

These changes mean that local municipalities, businesses, and volunteer groups are now often required to provide more formal evidence for representation and accountability than they had in the past. Expediency, public opinion, or political strategy alone are no longer expressed as sufficient bases for the allocation of funds or services. Requests must be accompanied by business or strategic plans and fiscal accountability procedures, and more formal governance structures are now favoured over informal arrangements (Ryser and Halseth, 2006). Increased calls for evidence-based justifications – scientifically and fiscally supported – are often part of these demands.

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9

Local decision-makers are now faced with unique challenges under these changing conditions. Not only are they expected to integrate regional, provincial, national, and international factors in their planning, they must do it under circumstances where the communication infrastructure and technical knowledge is weak (Jacob et al., 2008). They are asked to significantly modify their traditional sources of information and evaluation – often with very little support for alternatives. This process will inevitably affect the types of information utilized and the manner in which this information is used in rural policy formulation and evaluation. Our task is to consider how they manage this challenge.

2. Sources and Uses of Social Science Research

Where do rural people gain knowledge about their expected future and appropriate strategies for meeting challenges? The types, sources and uses of information utilized in rural settings have some distinctive characteristics. Traditionally, people in rural communities have a strong sense of place and rely upon informal social networks and personal relations for information and decision-making, thereby heightening the "significance of perception, identity, representations, and social construction" (Halseth, 2010:4). For example, the ban of pesticide use in the town of Hudson, Québec, began with a local doctor conducting sample tests on her patients at their discretion. The community began to organize against pesticide use based on these findings, meeting informally and at town council meetings to express their concerns. This case eventually made its way to the Supreme Court of Canada, with the court ruling against pesticide use (CBC, 2009). This story is illustrative of the informal and communal manner in which information is generated and formulated as policy in rural settings.

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10

In contrast, the official requirements of provincial and federal governments most often insist on the use of formal planning techniques for municipal decisions. Funding allocations for ongoing and special projects are typically dependent on such reports, backed by the use of statistics collected in a structured manner. The capacity of small and rural communities to conduct such analysis is often very limited – forcing them to hire outside consultants and planners to prepare the necessary materials. It is unlikely that this means the development of local capacity for planning, however, since such documents tend to be narrowly defined and relatively independent of local training (Jacob et al., 2008). We expect, therefore, to find that the sources and uses of information at the local level are likely to be different than at the provincial or federal level – or even among larger centres that can afford full time planning staff.

Research by Bogenschneider and Corbett (2010) suggests that we are also likely to find differences between staff and legislators within policy-relevant organizations. Their study of the uses of evidence-based research in Wisconsin revealed that state legislators found personal stories from constituents to be the most useful type of information (2010:46). This compared with state agency officials who did not find personal stories particularly useful. An account of this discrepancy was stated very clearly by one legislator: "if you give legislators the research and facts, and I tell a heart-wrenching story, I will win every time" (ibid). This may also explain why the study by Caplan et al. (1975) found that political implications tend to override scientific utility among their interview subjects.

In this study Caplan et al. (1975) collected information from 204 people through face-to-face interviews with upper-level decision-makers in the executive branches of the United States, identifying general trends in the sources and uses of social science research. They found that senior decision makers relied largely upon data produced internally by government agencies and

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11

sources (ibid:47). They also found that the impact of "soft" (i.e. non-systematic) data "may be great or even greater than the impact of hard information" (ibid). The authors concluded that "political implications of research findings appear to override any other consideration in determining utilization. Social science data are rarely of such compelling force as to take precedence over their political significance, not only with respect to the use of data, but with respect to the deliberate non-use as well" (ibid:49).

The research traditions investigating the diffusion and adoption of innovation provide useful frameworks for our research questions in spite of their different approach to the issues of knowledge flows (Katz and Lazarsfeld 1955; Wejnert, 2002; Everett, 2003). Instead of asking "What are the sources of information used for decision-making?" they typically start with a new idea or innovation and ask "How does it spread?" Insights from this research are relevant for our question, however, since they point to the important role of exposure, type of media, content of the message, psychological predispositions, and the social attachments that the recipient has to other people as important elements to consider when identifying sources of information. Rogers' (2003) elaboration of this work largely affirms the previous authors' recognition of the social context for the diffusion of innovation in spite of its psychological focus. Throughout this literature, the important role of "opinion leaders" points to the role that key people play in the transmission and reinforcement of knowledge – including knowledge relating to policy decisions.

The emergence of research regarding "knowledge translation" or "knowledge mobilization" also provides a more contemporary source of insights for our purposes (Etienne, 1998; Greenhalgh and Glenn Robert, 2004; Estabrooks, et al., 2006). This work has the advantage of sharing our focus on the role of policy, although it most often stems from a concern

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12

about how scientific research can affect policy rather than how that research is used by policy-makers. Common to this literature, however, is the important role of practice in the transfer of knowledge: "…knowledge…is produced over time as groups solve problems." (Estabrooks et. al., 2006:33). This suggests we should play close attention to the particular types of issues considered and the social context of the policy-development when assessing the sources and uses of knowledge.

Although fragmentary and suggestive at most, the research literature is clear that the relationship between scientific knowledge and policy is not a simple one (Lasswell, 1971; Stone et al., 2001; Zussman, 2003). We cannot expect to find that local decision-making fits a model where knowledge is made available from various sources and policy-makers assess the relative merits of the options as an individual process. Instead, if social science knowledge affects policy, it will likely occur via specific research findings, the policy-maker's capacity to understand those findings with respect to the problems they face, the social climate of credibility for evidence-based claims, and the particular social and political demands of the moment when policy is required.

3. Content Analysis of Field Interviews

In spite of the complexity of the task, there is value in examining the use of scientific knowledge for policy-making – to assess the extent to which policy has become evidence-based, to understand the ways in which it may become more so, and to determine how the differential contexts of rural and urban, small or large communities might alter the nature or impacts of research. In the light of the insights above, the goal for our empirical work must be moderated to

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13

meet the available data and capacity to disentangle the many processes involved. Our strategy is first of all, to focus on policy-making within small scale and rural locations.

Much of the research literature relating to the use of scientific knowledge focuses on decision makers at relatively high levels in policy administrations (usually urban-based). To augment this information, we have used content analysis of field interviews with local, rural-based community leaders to assess the extent to which they use such knowledge in their policy and action decisions.

The interviews used in our analysis were not designed to directly solicit information regarding the use, sources, and credibility of knowledge as used by local leaders. Instead, they were conducted as part of a national study comparing policy regimes among four provinces in Canada (Vodden, 2011). As part of this work, regional leaders were selected and interviewed regarding five broad themes: governance, integration, knowledge flow and innovation, place-based development, and rural-urban interdependence. Specific questions ranged broadly and they included many opportunities for the respondents to make claims about their region, policies affecting them, and the choices they made in response to local issues. Our analysis of these interviews will focus on these claims.

In keeping with our objectives, we scanned the interview transcripts and summaries searching for the claims that were made by the respondent relating to the local conditions or challenges, their assessment of the causes, consequences, or contexts of these conditions or challenges, and the way in which they supported the veracity or importance of those claims. We excluded claims made about the structure and activities of their particular organization (a special focus of the project for which they were collected) and focused instead on claims made regarding their region, community, general trends, or other matters likely to be related to their policy

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14

decisions. Each of the claims was coded with respect to the topics in Table 2 along with several characteristics of the person's role and location.

Table 2: Classification of Claims

Characteristic of Claim	Details (Note: Multiple codes can be used within each general characteristic)
Nature of the claim	Descriptive
	Evaluative
	Predictive
	Unclear
Primary source of information	Public media
	Scientific literature
	Word-of-Mouth
	Public or meeting presentation
	Personal experience
	Consultant or formal advisor
	Government
	Internet
	Unspecified
Specificity of support	Specific
	General
	Unspecified
Quality of support	Corroborated with systematic evidence
	Example(s) from personal experience
	Report(s) from staff or colleagues
	Appeal to authority
	Appeal to popular knowledge
	Unspecified

The claims made by respondents were coded with respect to four broad characteristics relevant to our analysis. The *nature of the claim* was considered in order to separate descriptive claims from those that were evaluative or predictive. These distinctions were anticipated to be differentially related to the extent and nature of the support provided for them. We identified the *primary source(s) of the information* into the seven items indicated in Table 2. Given that these interviews were not designed to explore details about these sources of information, we were forced to draw inferences about them using the following principles. Sources were coded if they

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15

were explicitly mentioned. If they were not mentioned directly, but the claim included information that allowed an unequivocal inference about its source, this would also be coded. Situations where respondents recounted their experiences as part of the claim are common examples of this type of inference. Claims for which there were no sources mentioned or the sources could only be inferred with uncertainty were coded as 'unspecified'. Where possible, we also coded the claim with respect to the *extent it was specific* to a particular group, event, or location – or whether it was general, without a clear entity mentioned. Finally, we developed a code to reflect the *quality of the support provided* – as evaluated from a perspective of evidence. This allowed us to further differentiate the claims that were supported by systematic evidence from those that simply appealed to authorities or popular media. This distinction also serves to provide us with information about the type of channels used for information.

Eighteen interviews were coded in this manner: nine in each of the two Canadian provinces considered, British Columbia (BC) and Newfoundland and Labrador (NL). Most of the respondents held administrative positions in local governments or NGOs within a strategically selected sub-region of each province. Since the respondents were selected to maximize the range of interests in the regions, they represent a number of sectors. All of them were interviewed in a face-to-face manner. The databases for our content analysis consisted of the transcripts from those interviews – coded and analyzed using NVivo software. The coding was accomplished with the use of four coders. In order to improve consistency, the coders met frequently to resolve uncertainties and in order to avoid coder-location biases, we ensured that each coder worked on interviews from both of the sites.

Quantitative analysis of the claims made reveal some important general patterns (cf. Table 2). By far, the greatest percentage of claims were descriptive in nature (60%) and were

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16

provided without a clear indication of the source of their support (50%). Most of claims were about local groups, activities, or circumstances, as illustrated in the following quotations.

"We collaborate with the figure skating club. We use their stuff, they want to use our stuff, we lend it to them we're always shifting things back and forth" (CL110BySI190…; in496 - recreation2; Reference 6)

"[Community A] and [community B] have had a historic rivalry as communities." (CL110BySI190…; 121-KB-LCIC-05312011; Reference 14)

Some of them included generalizations such as the following.

"There is disproportional high population base that is very opposed to chlorinating water, where in other parts of the country this is a standard technology." (CL110BySI190…; 20-CK-RegionalDistrictEnvironment-10062011; Reference 4)

In these examples, the respondents make little effort to provide support for the claims.

Table 2: Distribution of claims by characteristics (Total claims = 1352)

Characteristic of Claim	Details (Note: Multiple codes can be used within each general characteristic)	% of Claims (within each characteristic)
Nature of the claim (N=4425)	Descriptive	60
	Evaluative	34
	Predictive	5
	Unclear	1
Primary source of information (N=4426)	Public media	1
	Scientific literature	2
	Word-of-Mouth	4
	Public or meeting presentation	4
	Personal experience	31
	Consultant or formal advisor	2
	Government	6
	Internet	1
	Unspecified	50
Specificity of support (N=3641)	Specific	63
	General	24
	Unspecified	13
Quality of support (N=4058)	Corroborated with systematic evidence	1
	Example(s) from personal experience	36

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17

Characteristic of Claim	Details (Note: Multiple codes can be used within each general characteristic)	% of Claims (within each characteristic)
	Report(s) from staff or colleagues	5
	Appeal to authority	5
	Appeal to popular knowledge	5
	Unspecified	47

Of those claims that did provide support, in most cases it was by using examples from their personal experience – as illustrated in the following quotation.

"So if it weren't for those surrounding communities then they wouldn't have the amount of people sleeping in these hotels. So whether they know it or not they're relying on the rural urban interaction. But whether they're trying to foster and encourage that to continue I don't know. Destination Gander is a good example, and Adventure Central is sort of the region, the larger central caucus body for DMO and they work with some of the Destination Gander charters, but they work with some of the local Gander hoteliers and attractions to develop package systems and things like that…" (SI120ByQE120…; in413 – KEDC; Reference 1)

For only five percent of the claims did the respondents make reference to the scientific literature and only one percent were corroborated with systematic evidence. The following quotations illustrate some of the ways these claims are supported.

"We just completed a five year client survey that laid out how people felt about our programs and services, what could be improved." (SI120ByQE110…; 9-CK-CF Nelson-05272011; Reference 1)

"There was a review, a regional district review a few years ago the province did. They had a fellow from the University of Victoria I believe, do that review for them. That was probably about 2005. And basically it reviewed the basic regional district structure as a

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18

form of local government. And compared it to County systems and other types of regional governance in other parts of the world. And ultimately his conclusion was that it seems to be working well. There are problems with it but ultimately it is working well. And I mean it is. There are some areas where I think there could be improvement."

(SI120ByQE120...; 3-KB-RDKB Planner-05242011; Reference 1)

Public sector organizations such as regional planning boards and universities are frequently mentioned as the sources for this more systematic information – along with the occasional regional corporation or 3rd sector group.

In order to explore the distribution of the characteristics of responses, we conducted several crosstabulation analyses using the various categories in Table 1 as well as the location of the respondents. The bivariate analysis of the claim characteristics largely confirms the general results of the univariate analysis above: most claims do not include support, and those that do rely primarily on personal experience and examples to verify those claims. The use of scientific and systematic research-based evidence is seldom explicitly mentioned.

The research literature regarding knowledge use and transmission also leads us to expect there may be some variation in its use by the two geographical regions considered. If knowledge use is socially constructed we are likely to find that the policy regimes and regional networks in BC and NL will produce different views and approaches to the use of information in general and scientific insights in particular. This expectation was reinforced as we proceeded with the coding of the interviews. Largely independently, the coders felt that the respondents from Newfoundland and Labrador tended to descriptive claims, often backed up with accounts of meetings they attended or more general knowledge, whereas those from BC tended to be more evaluative in nature, without an attempt at support (e.g. "that was good", "I think that's a good

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19

model", or "I think that's the best part of the campaign.") Where support was offered in the BC situation, it tended to be more formally structured than in that in NL – yet still making reference to their personal experience. An example from BC can be seen in the following quotation.

> "…well, when you are talking about boundaries … there are 7 in BC, economic development regions. They are essentially just administrative boundaries. They do not necessarily reflect biogeoclamatic relationships or historic trade patterns or such. Just more of an administrative pattern. So for example, Golden, is part of the Columbia Shushwap and part of that regional district as a local government. Golden is also part of the Thompson-Okanagan economic development region for the province. But most of Golden's economic activity, and historic activity, has been with the East Kootenays."

These impressions are supported by a statistical analysis of the coding (cf Table 3). A higher proportion of claims in NL are descriptive, and the sources tend to be presentations and the internet, with a greater emphasis on corroboration with scientific evidence. Those made by BC respondents, on the other hand, tend to be higher with respect to evaluative claims, leaving the claim unsupported or using examples from their personal experience.

Table 3: Distribution of claims by characteristics and provinces (Total claims = 1352)

Characteristic of Claim	Details (Note: Multiple codes can be used within each general characteristic)	% of Claims (within each characteristic) BC	% of Claims (within each characteristic) NL
Nature of the claim (N/NL=1011) (N/BC=1815)	Descriptive	61.8	78.8
	Evaluative	34.9	15.8
	Predictive	3.1	4.1
	Unclear	.2	1.4
Primary source of information (N/NL=3385) (N/BC=1967)	Public media	1.2	1.3
	Scientific literature	2.9	1.9
	Word-of-Mouth	5.1	3.2
	Public or meeting presentation	2.9	25.5

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20

Characteristic of Claim	Details (Note: Multiple codes can be used within each general characteristic)	% of Claims (within each characteristic) BC	% of Claims (within each characteristic) NL
	Personal experience	21.4	1.0
	Consultant or formal advisor	1.5	5.1
	Government	4.0	.6
	Internet	.0	25.9
	Unspecified	61.0	35.5
Specificity of support (N/NL=696) (N/BC=1537)	Specific	61.8	53.7
	General	26.0	36.3
	Unspecified	12.1	10.0
Quality of support (N/NL=2103) (N/BC=1711)	Corroborated with systematic evidence	2.3	41.4
	Example(s) from personal experience	28.0	5.6
	Report(s) from staff or colleagues	4.7	6.4
	Appeal to authority	3.8	6.6
	Appeal to popular knowledge	4.0	38.9
	Unspecified	57.3	1.1

The quality of support (if provided) also varies among the three types of claims we have considered. Since the overwhelming majority of claims are made without support, we have conducted the analysis using only those claims that are supported (Table 4). The results indicate that research materials are over-represented when scientific literature is used for support, but these materials are seldom used in general (only 10 claims made reference to systematic research). Comparing across the rows, we see that systematic research materials are over-represented among claims supported by scientific literature and consultants or formal advisors, but the levels are rather small.

Table 4: Percentage of claims by source of support and quality of support

	Quality of Support				
Source of Support	Research	Examples	Reports	Authority	Popular

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21

Public media	.0	1.5	.0	3.6	4.1
Scientific literature	25.0	1.7	10.3	7.3	.0
Word-of-Mouth	.0	3.9	6.9	3.6	.0
Public or meeting presentation	.0	3.9	19.0	5.5	2.0
Personal experience	43.8	51.0	19.0	29.0	46.9
Consultant or formal advisor	6.3	1.7	5.2	3.6	.0
Government	7.7	4.7	20.5	14.7	3.7
Internet	.0	.7	.0	.0	.0
	(16)	(406)	(58)	(55)	(49)

Of the 112 claims referring to scientific evidence as their source of support, only 21 included sufficient information to assess specify the quality of that support. Where such information about the quality was provided, the respondents referred to examples from personal experience (7), reports from staff or colleagues (6), or scientific evidence (4). An example of the first type is found in the following quotation.

"…is better, everything is better. So the economy, the oil sands, can be a

huge generator and has been along Kootenay Lake for a number of years.

You just have to look at the purchases of some of the properties along

the lake and recreation sites around Trout Lake and Nakusp and all." (BC #8)

An example of the use of reports is the following.

"…you can look at each of your communities and see if they're scoring high or low based

on a long list of stuff, there's also maps available where you can see where people are

transferring are going for work, there's also been a fair amount of work done in terms of

functional regions around some of that. So Councils have dissected all that information

and looked at the population flows, even with all of this information has been projected

over a 30 year span we've looked at the demographics 15 years in the past, what it is

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22

currently, and what the projections will show, and the projections we have low medium

and high projection levels for population." (NL #1)

In 229 cases, the claims are justified by referring to the popular media as in the following

quotation.

"…you know when you read the newspapers, it gets real ugly down

here at some of these public meetings." (BC #8)

In 222 cases, we find that the respondent makes claims (usually general) in which they

only used appeals to authority for support.

"…he's the president of the [NGO]. So here is a person from a very small rural [area], he

would actually be a very interesting person to talk to." (BC #8)

In general, the data reinforce the points that formal, systematic research is very seldom

used in community leader's discourse regarding their regions and the conditions or factors

affecting them. Most often, their claims remain unsupported. Where they do provide support, it is

most often in the form of examples from their personal experiences – often quite specific to the

region or issue being discussed. Where systematic research is invoked, it is more likely to be

descriptive than evaluative, and more specific than general.

These data also suggest that the nature of information used and the criteria for its

reinforcement vary to some extent from one region to another. Our NL respondents appear to

make claims that are more likely to be descriptive and supported by appeals to popular

knowledge, whereas those from BC are more likely to be evaluative with support by anecdotes

from personal experience.

4. Discussion and Conclusions

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23

Scientific research and evidence do not appear to play direct roles in knowledge development for local and regional policy-makers. There seems little evidence that the policy-makers at this level are seeking answers to their questions by searching the social science literature themselves, but their access to such materials is filtered through a number of sources and activities. Primary among these are examples as they go about their personal or professional activities on a daily basis. This is manifested in the high proportion of claims that were illustrated and justified in our interviews, by reference to examples they cited. Many of these examples also came to them by word of mouth – from colleagues, friends, and (in fewer cases) formal presentations or consultations.

These data reaffirm the important role of mediators in the transmission of information and diffusion of information as suggested by Katz and Lazarsfeld (1955). Subsequent research in this vein has shown the important role of networks in this process, since they not only facilitate the transfer of information, but they convey the level of trust that a recipient can place in the veracity of that information (Fliegel, 1992). In theory, these networks may be conduits for evidence or science-based knowledge, but our data suggests otherwise. The primary sources were unlikely to be consultants or public presentations and in those cases were we were able to assess the quality of the support, we found that reports from staff and systematic evidence were unlikely to be used in comparison to personal experience or appeals to popular knowledge. These latter conduits are unlikely to be ones where scientific evidence is highly valued.

These data also reveal the low frequency with which justification for policy-related claims appears to be required. Most of the claims made in the interviews did not include a reference to sources of support and a large percentage of them made no reference to the sources

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24

of the information on which the claim was made. There a number of possible explanations for these results.

First of all is the structure of the data analyzed. The interviews were not designed to explore the sources or nature of the claims made by the respondents. There was little, if any, pressure on the respondents to provide support for their claims or elaborate on their sources. Instead we treat the exchanges as a form of natural language or conversation and ask what it reveals about the relative importance of support – and particularly social science support – for the claims being made. This approach places us closer to the traditions of conversational analysis (Sacks, 1971), ethnomethodology (Garfinkel, 2002), or institutional ethnography (Smith, 2005) than more traditional analyses. The conversations are treated as reflections of the way in which people make sense of their world, and our inferences assume that they mention their experiences, meetings, or other source of information only because they help to communicate and reinforce the meaning to the researcher. From this point of view, we leave open the possibility that the patterns we find might change – with another interviewer, social context, or series of questions. The low number of times they support their claims, or do so with reference to social science evidence, is, therefore, an artifact of the way we have structured the conversation – as a discussion about how they make decisions, not about the information they use and trust.

If so, then these results can be used to structure a more appropriate discussion for our research question. They point to the importance of differentiating descriptive from evaluative claims, elaborating the types of personal experiences to which people refer, differentiating among first-hand and indirect access to social science information, and exploring the channels of information that they find most useful. In this respect our work provides a preliminary

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25

exploration of the role of scientific knowledge in policy formulation only – but one that can guide a more structured design.

A second interpretation for our results is that the type of information required for the decisions of these policy-makers is simply not available – or provided in a form that is inaccessible to them. The current emphasis by the major Canadian research funders (SSHRC, CIHR, NSERC) on knowledge mobilization and knowledge translation is built on these assumptions. Considerable effort and funding has been directed to this challenge in all three agencies, with varied results (SSHRC, 2011). Most of these efforts assume that the population of policy-makers will be receptive to the scientific insights so long as they can be explained in "plain language" or their relevance to the policy-decisions can be made clear. This assumption is encouraged by federal and provincial policy-makers who call for "evidence-based policy."

If so, then the appropriate policy response would be to increase our efforts in knowledge mobilization, with particular attention to the special requirements of policy-makers in rural and remote places. Given the preponderance of examples and first-hand experiences that are used as justification by these people, such a strategy is most likely to be successful if it is tailored to the specific conditions and networks in rural areas. Broad scale analysis with little attempt to relate them to local conditions are likely to be dismissed as irrelevant or considered confusing to policy-makers faced by local challenges and conditions.

This implication is very consistent with the findings and strategies developed in the literature on knowledge mobilization. To make it successful, considerable effort must be spent on activities where local leaders are integrated in the identification of issues, development of strategies to deal with them, the analysis, and production of results that are part of scientific knowledge development.

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26

A third interpretation for our results is that local and regional policy-makers have little interest and/or confidence in scientific-generated and developed knowledge. There is also evidence for this conclusion – sometimes in spite of a professed interest in evidence-based policy. In Canada, the funding for research has been reduced (Abraham, 2009), support for long standing database and information collection has been refused (Campion-Smith, 2010), and the evidence regarding social trends has been dismissed when they do not fit with party agendas (Mackrael, 2011).

If this is the case, then an alternative strategy must be adopted – one that addresses more directly the credibility and value of scientific investigation and analysis. It may appear anachronistic that such a case must be made, but it should not be a surprise that the principles on which such investigation rests can challenge vested interests at many levels of government (Arendt 1958; Popper 1945). In all three instances, our evidence provides encouraging suggestions for improvement. In virtually all of the interviews the respondents express a strong concern and motivation for dealing with the challenges they face. In addition, they are all connected to networks that could help to mediate the flow of information and facilitate making the case for its veracity and utility. Rather than create new networks of communication and face the challenge of building credibility under separate venues, a better strategy would be to identify those networks which are already used by local policy makers, integrate them into the process of issue identification and strategic development, and invite them into the processes of analysis and communication. As our research experience shows, this is most likely to build a reliable knowledge base, improve the credibility of evidence-based judgments, and open the channels of collaboration among citizens, policy-makers, and researchers.

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27

Our research also emphasizes the value of bridging the differences among the wide variety of networks in rural areas (Reimer et al. 2008). Scientific and systematic research insights are relevant to all of them: from those in the private sector, to government, third sector groups, cultural, and family groups – each with their different normative structures. For this reason, the 'translation' and interpretation of scientific approaches and results can take many forms and include a wide variety of persons. This is a challenge that researchers face since they are often isolated from such variety and unable to bridge the different styles of discourse in an effective fashion. In this respect it would be strategic to form alliances with those in the media, educational institutions, and the arts – all experts in the challenges of communication. Once again, rural areas are often well endowed with such organizations – in both formal and informal forms. Establishing links with them, exploring options, and developing programs appropriate for specific circumstances are all items for an agenda of rural capacity-building.

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33