The distribution of analytical techniques in policy advisory systems: Policy formulation and the tools of policy appraisal

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Abstract
The literature on policy analysis and policy advice has not generally explored differences in the analytical tasks and techniques practiced within government or between government-based and non-government-based analysts. A more complete picture of the roles played by policy analysts in policy appraisal is needed if the nature of contemporary

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policy work and formulation activities is to be better understood. This article addresses both these gaps in the literature. Using data from a set of original surveys conducted in 2006–2013 into the provision of policy advice and policy work at the national and sub-national levels in Canada, it explores the use of analytical techniques across departments and functional units of government and compares and assesses these uses with the techniques practiced by analysts in the private sector as well as among professional policy analysts located in non-governmental organizations. The data show that the nature and frequency of use of the analytical techniques used in policy formulation differs between these different sets of actors and also varies within venues of government by department and agency type. Nevertheless, some general patterns in the use of policy appraisal tools can be discerned, with all groups employing process-related tools more frequently than "substantive" content-related technical tools, reinforcing the procedural orientation of much contemporary policy work identified in earlier studies.

Keywords

Policy-making, professionalism/professions, public administration, administrative organization and structures, contracting out, good governance

Introduction: Analytical techniques and policy analysis

Gill and Saunders (1992, 6–7) characterize policy analysis as "a method for structuring information and providing opportunities for the development of alternative choices for the policymaker." As part of the policy formulation process, this activity involves policy appraisal, that is, providing information or advice to policy makers concerning the relative advantages and disadvantages of alternative policy choices (Howlett et al., 2009; Mushkin, 1977; Sidney, 2007; Wildavsky, 1979).

A variety of different policy workers operate in a broad range of venues both internal and external to government to provide advice employing a variety of analytical techniques or "formulation tools" in this effort (Colebatch et al., 2011; Mayer et al., 2004). These tools generally are designed to help evaluate current or past practices and aid decision-making by clarifying or eliminating some of the many possible alternative courses of action mooted as policies are formulated. They play a significant role in the structuration of policy-making and in the determination of policy outputs' content, and thus of policy outcomes (Sidney, 2007). This is the "work" of policy and deepening our knowledge of this work and of those engaged in it is an important undertaking in contemporary policy research.

It is generally true that there is a lack in the knowledge of many of the tasks and activities involved in policy formulation (DeLeon, 1992; Linder and Peters, 1990), and there is limited data for virtually every aspect of the policy appraisal activities governments engage in and for the nature of the advice they receive in so doing (Page, 2010; Page and Jenkins, 2005). In the policy literature, while many works recommend and suggest how formulation *should* be conducted (Dunn, 2004; Vining and Weimer, 2010), very few authors have studied how it is *actually*

undertaken in practice (Colebatch, 2005, 2006; Colebatch and Radin, 2006; Noordegraaf, 2011).

Various country-based studies have pioneered the study of such work. Four decades ago, for example, in the case of the US, Arnold Meltsner (1976) observed that analysts undertook a number of roles in the policy-making process but emphasized their specialist training and expertise in sophisticated analytical methods of policy appraisal and evaluation. This formed the basis of assumptions about the nature of policy work and policy appraisal in many jurisdictions for decades (Howlett and Wellstead, 2012).

Later observers of the US case, such as Beryl Radin (2000), Nancy Shulock (1999), and Sean Gailmard and John Patty (2007), however, argued the use of such techniques in policy-making and policy work was exaggerated. In the UK and Germany as well, contrary to the early picture of carefully recruited analysts trained in policy schools to undertake specific types of microeconomic-inspired policy analysis presented by Meltsner (Weimer and Vining, 2010), investigators such as Edward Page and Bill Jenkins (2005) and Julia Fleischer (2009) found British and German policy-making to instead typically feature a group of "policy process generalists" who rarely, if ever, dealt with policy matters in the substantive areas in which they were trained and in fact had very little training in formal policy analysis or analytical techniques. The extent to which this average picture accurately described the situation in all venues within a country and within governments has remained an open question until recently.

Over the past decade better evidence has slowly accumulated on the nature of policy work and the array of analytical techniques utilized by different actors in different venues of policy appraisal (Boston et al., 1996; Mayer et al., 2004; Sullivan, 2011; Tiernan, 2011). For example, Turnpenny et al., in 2008–2009 mapped many of the activities involved in both *ex post* and *ex ante* policy evaluation (Hertin et al., 2009; Nilsson et al., 2008; Turnpenny et al., 2009), and more recent research from Australia and elsewhere has looked at regulatory impact assessments and the use of other similar tools and techniques in formulation activities in different countries(Carroll and Kellow, 2011; Rissi and Sager, 2013).

Recently, the authors and their colleagues published a set of studies exploring the activities of governmental and non-governmental policy actors in Canada, which has expanded the frontiers of knowledge on these subjects. This work joined the research undertaken by other authors who probed the activities and backgrounds of professional policy analysts in Canadian government (Bernier and Howlett, 2011; Howlett and Joshi-Koop, 2011; Howlett and Newman, 2010; Howlett and Wellstead, 2011); those working for NGOs (Evans and Wellstead, 2013); ministerial staffers (Connaughton, 2010; Eichbaum and Shaw, 2007, 2011; Fleischer, 2009; Shaw and Eichbaum, 2012); policy consultants (Perl and White, 2002; Saint-Martin, 1998a, 1998b, 2005; Speers, 2007); and many other prominent members of Canadian national and sub-national level policy advisory systems (Craft and Howlett, 2012a; Dobuzinskis et al., 2007; Halligan, 1995).

Consistent with the pattern found in Australia (Tiernan, 2011), Ireland (Connaughton, 2010), New Zealand (Eichbaum and Shaw, 2011), and the UK (Page and Jenkins, 2005), these analyses found that most policy workers in Canadian government primarily engage in process-related tasks and activities without a great deal of training or effort devoted to more formal policy appraisal techniques. However, while providing the most extensive record of policy work in a single jurisdiction available to date, this research continues to have several limitations.

First, although distinguishing between regional and central level activities (Wellstead and Stedman, 2010; Wellstead et al., 2009) and finding some significant variations in analytical modes and techniques practiced at these levels, it has generally not differentiated very carefully between different organizations and functions of government within Departments and units (an exception being Howlett and Joshi-Koop, 2011).

Second, although this research began to explore differences between government-based and non-government-based analysts and analysis, this has remained preliminary. And, significantly, this research also did not take into account the activities of the so-called invisible analysts in government (Speers, 2007); that is, the ever-growing number of external consultants who work on a contract basis for governments on policy matters, sometimes replacing internal analysis and analysts (Howlett and Migone, 2013; Lindquist and Desveaux, 2007; Momani, 2013).

To better understand the nature of contemporary policy work, analytical techniques and formulation activities, we need a more complete picture of policy formulation tools and the roles played by policy analysts within it. Both the concerns raised above are addressed in this article.

Because the questionnaires utilized in all of the Canadian studies mentioned above are almost identical, these data provide a very useful starting point in building a comprehensive picture of the differences and similarities that exist across different venues of policy work. Combined, the data from these studies deliver a more precise description of the frequency of use of specific kinds of policy formulation tools and techniques used both within government and outside government.

The article proceeds in three steps. First, the results of published national and sub-national surveys conducted in 2006–2009 of internal Canadian policy analysts are summarized. Here, the discussion sets out what is currently known about the formulation and appraisal activities in this location, focusing on the techniques these actors employ in their work. Second, the article re-analyzes the original datasets used in these studies to tease out their findings with respect to differences in the use of analytical techniques across departments and functional units of government. Finally, it includes data from two new surveys of policy consultants and those who manage them (completed in December 2012), and from two surveys of NGO analysts conducted in 2010–2011, to better compare and assess what techniques are practiced by actors in the private sector and non-governmental counterparts of professional policy analysts in government.

As the findings show, the frequency of use of major types of policy formulation analytical techniques is different for different sets of actors and also varies within venues of government by department and agency type. However, some general patterns in the use of policy appraisal tools within government can still be identified. For example, all groups are found to employ process-related tools more frequently than "substantive" content-related technical tools, thus reinforcing the procedural orientation in contemporary policy work identified in earlier studies.

The "lumpiness" hypothesis: The (uneven) distribution of policy analysis across government

The former head of the Canadian federal government Policy Research Initiative (Voyer, 2007) in his contribution to a 2007 book on the state of the art of policy analysis in Canada, argued that the distribution of analytical capacities among government agencies was naturally "lumpy". That is, different units are not only just endowed with different supplies of analytical services – the usual subject of academic analyses – but also experience different demands. Hence, practically, not all units need the same policy analysis capacity or capabilities and would not be expected to use the same tools or techniques of analysis.

In itself, this is a significant insight and hypothesis worthy of further exploration since, if true, it means that aggregate measures and depictions of overall government capacity and policy work require nuanced application to determine the needs and gaps encountered by specific agencies and activities. However, it is also the case that the venues of policy research extend beyond the governmental confines discussed by Voyer (2007). That is, policy analysis and advice are not the exclusive purview of professional analysts in government agencies but extend to the non-governmental sector as analysis conducted by consultants and by a range of NGOs, like think tanks and research councils among others arranged in various kinds of "policy advisory systems" (Craft and Howlett, 2012a). The literature is even less advanced regarding the distribution of capacities among non-governmental policy workers and the relationships that exist between the governmental and non-governmental components of policy advisory systems are almost completely unknown.

However, it is plausible to suggest that Voyer's governmental "lumpiness thesis," can be extended to the external components of overall policy advisory systems. That is, given supply and demand conditions overall and within each organization, not only should the distribution of tools and techniques, tasks and capacities be expected to vary across governments but also across non-governmental analysts, and between governmental and non-governmental actors, as well.[1]

Here, we present empirical evidence from the above mentioned sets of surveys into the activities of professional analysts in government, policy consultants, and analysts working for NGOs in Canada undertaken over the period 2006–2013, along with data that examine the distribution of capacities within government. These data enable us to examine for the first time in some detail the distribution of techniques across and between governmental and non-governmental venues.

Data and methods

The first set of surveys noted above focused on the activities of professional policy analysts employed by federal and provincial governments between 2006 and 2009. This project included 15 individual studies that examined the behavior and attitudes of core civil service policy actors in all senior Canadian "policy bureaucracies" (Page and Jenkins, 2005).[2] Data on the Federal government are drawn from two surveys conducted in 2006–2007. The first was a census of 1937 people identified by members of the Regional Federal Council (an organization of senior federal civil servants located outside Ottawa) from all provinces and territories that undertook policy-related work. The second was a random sample of 725 National Capital Region-based (Ottawa-Hull) policy employees identified from the Government Electronic Directory of Services (Wellstead and Stedman, 2010; Wellstead et al., 2009). The federal response rates were 56.8% ($n = 1125$) and 56.4% ($n = 395$), respectively, giving a total sample of 1520 policy workers. Provincial and territorial data were collected from every sub-national jurisdiction in 13 separate surveys, which were conducted in late 2008 and early 2009. Respondents were identified from job titles listed in publically available sources such as online government telephone directories, organizational charts and manuals, and members of commissions (Howlett, 2009; Howlett and Newman, 2010). This yielded a population of 3856 policy-based actors, which yielded 1357 responses for a response rate of 35.2%. The total population surveyed across the federal, provincial and territorial governments was thus 6518 with a combined overall national response rate of 2877 or 44.1%.

Table 1. Sample responses.

	Sample frame	Sample	Respondents (*n*)	Response rate (%)
Federal	Census members of Regional Federal Council	1937	1125	56.8
Federal	Random sample of National Capital Region-based policy employees	725	395	56.4
Provincial	Census of publicly listed provincial and territorial policy employees	3856	1357	35.2
Total		6518	2877	44.1
Usable responses		–	2730	41.9

While very similar, the survey questionnaires used in these studies were not identical and some questions relevant to techniques of analysis were not included in the federal survey. Also, the range of functions and names of specific ministries and units varies by province and territory, thus it is difficult to develop an aggregate or average depiction of intra-governmental agency structure. As a result, we use the largest single provincial case, Ontario, as a proxy for the average provincial and territorial professional policy analyst community and occasionally for the federal or national levels as well.

The second set of surveys was conducted in 2010–2011 to explore the activities of non-governmental analysts employed by think tanks and research institutes. Two surveys were undertaken: a government-based 192 variable (45 question) questionnaire intended to capture the dynamics of NGO-government interactions; and an NGO-based 248 variable (38 question) questionnaire. Both surveys addressed the nature and frequency of the tasks performed by analysts, the extent and frequency of their interactions with other policy actors, and their attitudes towards, and views of, various aspects of policy-making processes. Questions addressing analysts' education, previous work, and on-the-job training experiences were also posed. Both surveys also contained standard questions relating to age, gender, and socioeconomic status. These surveys were administered to 2458 provincial policy analysts and 1995 analysts, respectively, working in the NGO sector in the provinces of Ontario, Saskatchewan, and British Columbia in four policy sectors: environment, health, immigration, and labor policy. The specific provinces and policy sectors dealt with in the study were chosen because they represent heterogeneous cases in terms of politics, history, and economic and demographic scale. As with the governmental studies, for both non-governmental surveys mailing lists were compiled, wherever possible, utilizing publicly available sources like online telephone directories, employing keyword searches such as "policy analyst" in job titles or descriptions. In some cases, additional names were added to lists from hard-copy sources, including government organization manuals. Based on preliminary interviews with NGO organization representatives, it was clear that many respondents undertook a variety of non-policy-related tasks in their work. Hence, the search was broadened to include any worker who included policy-related analysis in their work objectives. Because of the small size of both study populations, a census rather than sample was drawn from each. A total of 1510 returns were collected for a final response rate of 33.9%.

The third set of two surveys was conducted in 2012–2013 to assess the activities of external consultants hired by governments. One survey targeted government managers involved in contracting consultants and the other the consultants themselves. Both groups were surveyed to help understand how consultants' policy advice is solicited, developed, transferred, and used in the context of the Canadian policy advisory system. The consultants' survey was administered to representatives of companies that had performed policy work for various levels of government in Canada between the years of 2004–2012. Consultants were identified through

sampling of over 34,000 contracts from 10,000 companies contained in the federal government's Proactive Disclosure database of procurement contracts.

The consultants' survey included 45 questions on topics similar to the earlier federal, provincial, and NGO surveys and like the others was administered on-line (SurveyMonkey®) in December 2012 to 3228 email addresses obtained for consulting firms involved in policy work. Three hundred thirty-three complete responses and 87 partial ones were received for a total of 420 responses and a response rate of 13%. Like the NGO study, the consultant survey questionnaire was designed, as far as possible, to duplicate the exact questions asked of federal, provincial, and territorial permanent policy analysts by the authors in 2009–2010. The goal was to allow meaningful comparisons between these actors and others in the Canadian policy advisory system.

Findings

Findings are presented below from the three sets of surveys. The first set of findings is drawn from the federal/provincial/territorial survey and deals with the original "lumpiness" hypothesis concerning the expectation that analysis and analytical techniques would vary by venue or location within government. The second set of results addresses the situation of non-governmental policy workers, both working in NGOs and as consultants.

The distribution of capacities within government: Venues and tools

In general, studies which have examined the use of sophisticated policy analytical or appraisal techniques and tools in government have noted that the frequency and purposes of use hinges on several pre-conditions being met. On the supply-side, agencies that undertake such analyses require both access to high-quality quantifiable data or information (Vining and Boardman, 2007) and the managerial and human resource capabilities necessary to both demand and supply this form of analysis and advice (Howlett, 2009). However, not every agency meets these criteria or has not done so at all times and in all circumstances. As noted above, because existing studies have not examined each agency in detail, exactly which kinds of agencies exhibit strengths in which areas and when is unclear and under-studied.

Furthermore, on the demand-side, as Voyer (2007) observed, not all departments need the same kinds of data and information to inform their advice and appraisals. Hence, different units can also be expected to exhibit different patterns in the use of specific analytical techniques. Some agencies like Finance or Treasury Board, for example, typically deal with issues that are relatively easy to quantify or monetize (budgets, revenues, and expenditures, respectively); usually relying on plentiful historical and contemporary data which are assumed to be very accurate and precise. These units are often also well resourced and able to hire staff or consultants who are interested in and can utilize this kind of evidence. Hence, it can be expected that these kinds of agencies are more likely to employ technical

forms of analysis and to continue to do so into the future. Other agencies, however, like those dealing with social or environmental policy often deal with less quantifiable or with contested data, have fewer resources and may not be as interested in or able to use the kinds of information that financial agencies utilize. Still others fall in between – for example, many Education or Housing or Transport agencies – who may have high-quality data available but may only use it at some times but not others. Finally, others such as Health or Mental Health agencies may not have access to the data they need even if they are willing and are potentially or actually capable of using it (Craft and Howlett, 2012b; Howlett and Joshi-Koop, 2011).

The survey of provincial and territorial officials discussed above offers some insight into this issue. Table 2 shows the top 10 policy-related analytical techniques employed by policy analysts for five selected Departments in the Province of Ontario. The most used technique is brainstorming (91.2%), and the analysts working on Environmental issues tend to use it the most (94.8%). Consultation exercises are a distant second choice at 76.3%, with analysts working on Education issues using this technique the most (82.1%). Risk analysis and checklists are ranked third and fourth, respectively, with analysts from the Health (74.3%) and Environmental (70.7%) departments being the most frequent users. Expert judgments and elicitation is also a highest ranked technique, which is used most by Environmental departments (63.8%).

Cost-benefit analysis and scenario analysis, which are often believed to be the fundamental techniques employed in policy analysis, in fact are ranked fifth and sixth overall. However, as suggested above, this overall distribution is misleading as Finance departments are the main user for both of these analytical techniques

Table 2. Top 10 policy-related analytical techniques employed by selected departments.

Techniques (top 10)	Education (%)	Environment (%)	Finance (%)	Health (%)	Transportation (%)	Total responses (%)
Brainstorming	86.3	94.8	86.5	96.0	91.3	91.2
Consultation exercises	82.1	80.2	68.9	77.2	63.8	76.3
Risk analysis	66.3	65.5	67.6	74.3	59.4	66.7
Checklists	69.5	70.7	58.1	66.3	58.0	62.7
Cost-benefit analysis	60.0	60.3	74.3	50.5	58.0	57.9
Scenario analysis	60.0	57.8	63.5	53.5	50.7	56.2
Expert judgments and elicitation	51.6	63.8	52.7	51.5	55.1	53.1
Financial impact analysis	54.7	41.4	73.0	45.5	46.4	47.2
Cost-effectiveness analysis	46.3	44.0	58.1	50.5	37.7	45.5
Focus groups	46.3	34.5	27.0	42.6	31.9	38.1

(74.3 and 63.5%, respectively). Finance departments also utilize financial impact analysis (73%) and cost-effectiveness analysis (58.1%) the most in their work. These administrative actors also rarely use other "softer" techniques such as focus groups (27%) although the latter technique is much more commonly employed by analysts working in other areas such as Education (46.3%).

This finding supports the idea that specific differences exist across intra-governmental policy venues regarding the types of analytical techniques and appraisal tools that are used by different agencies depending on their task environment (see also Howlett and Wellstead, 2012). Finance tends to dominate on every "technical" type of analysis, with the exception of risk analysis, and scores low on other tools such as "consultation" activity and other similar techniques. Other variations exist, such as Transportation which scores the lowest on both measures while Environment scores lowest on most of "hard" techniques, but high on techniques like expert elicitation. Education also scores low on most "hard" techniques even if it scores higher on the use of financial impact analysis while Health scores low on most techniques although high on the use of risk analysis.

This confirms Voyer's (2007) point that governmental units have their own peculiarities and needs. However, it also confirms the general conclusion that the nature of the hard/soft techniques used is linked to the general technical-quantifiable or political-qualitative nature of the tasks which each unit is assigned.

The following tables provide additional evidence for this supposition drawn from the degree and extent to which analysts in different units practice or attempt to practice specific techniques associated with "evidence-based" policy-making (Nutley et al., 2007); that is, gathering or accessing data, subjecting it to statistical analysis, and employing it in deriving and appraising policy alternatives. Table 3 tackles the entire provincial and territorial dataset, finding differences in the extent of utilization of techniques of evidence-based or evidence-informed policy analysis among six major activity areas. It highlights significant differences across areas in terms of how much of this kind of appraisal activity is demanded and/or supplied. More of this kind of activity can be seen in Health, the field that originated the idea of evidence-based policy-making, for example, than in other areas.

Table 4 looks at several aspects of the tasks that analysts face in different units and uncovers significant variations across sectors. It also shows significant variation by task area, this time in terms of the nature of the problems faced, the need for coordination across multiple actors, and the availability of data required to deal with problems.

Finally, Table 5 provides a self-assessment made by the analysts themselves about the level of policy capacity of their unit. Here, it is observed that although undertaking very different technical practices and kinds of policy work, most analysts believe their units enjoyed relatively high levels of policy analytical capacity, which suggests that they could use these practices if they so desired. Only Health reported less than 30% "high" results. This implies that most analysts (outside of the health sector) were in general satisfied with the range, amount, and type of techniques practiced in their units, their dissimilar profiles notwithstanding, and

Table 3. Use of evidence-informed methods, by sector.

	Percent of respondents who "often" or "always" feel…				
	…evidence informs decision-making	…they can access information and data relevant to their policy work	…encouraged by managers to use EIM in policy work	…required to use EIM in policy work	…provided with support and resources to use EIMs in policy work
Environment	33.0	32.6	28.0	33.0	10.2
Welfare	52.4	31.7	48.3	52.4	22.9
Health	60.0	48.2	54.0	60.0	31.7
Education	51.4	44.9	49.5	51.4	30.7
Trade	42.9	37.7	37.8	42.9	16.8
Finance	43.2	38.7	36.3	43.2	25.0

EIM: evidence-informed methods.

Table 4. Nature of issues dealt with on a weekly basis.

	Percentage of respondents who *weekly* deal with issues…				
	…for which data is not immediately available	…that require coordination across regions	…that require coordination with other levels of government	…that lack a single, clear, simple solution	…that require specialist or technical knowledge
Environment	54.1	44.0	33.7	66.7	69.0
Health	50.2	32.5	16.6	63.3	41.2
Social development	55.8	40.0	24.9	63.0	52.1
Education	45.8	22.3	17.6	47.1	37.4
Industry and trade	58.3	27.2	29.0	62.6	59.9
Finance	49.5	17.3	20.9	59.2	61.9
Total	52.6	32.5	24.1	61.6	61.9

hence are content with the different forms of policy work and practices. That is, not only does a "lumpy" distribution of techniques exist, it is here to stay.

The overall distribution of capacity between governmental and non-governmental actors

The second major question addressed in this article concerns differences between governmental and non-governmental analysts and policy advisory system

Table 5. Department policy capacity, by sector.

| Sector | Policy-making capacity rating of one's department or agency, by % of respondents | | |
	Low	Moderate	High
Environment	21.4	31.0	47.7
Social welfare	19.2	34.9	45.9
Health	25.3	45.2	29.4
Education	19.3	40.4	40.3
Trade	17.5	43.8	36.9
Finance	11.5	37.5	51.1
Total	19.8	37.9	42.2

members, including outside consultants. Here the larger, extended, version of the Voyer thesis is addressed; extending the analysis of techniques of policy appraisal to venues of policy formulation located beyond different units of government. This includes examining internal–external differences and similarities as well as addressing differences in policy work and techniques across different venues outside governments. The two key groups compared are professional analysts inside government, professional consultants who worked on a temporary contract basis for governments, and analysts located in the NGOs with whom government officials, and consultants, interact.

A first item of interest concerns the capacity of analysts in these different venues to utilize the full range of appraisal techniques. In order to assess this question, the backgrounds and training of both internal analysts and external workers were compared. Formal education levels between analysts and consultants and NGOs were found to vary significantly. About 75% of policy consultants hold a graduate or professional degree, with 23% having only a lower level university degree. This is much higher than the internal work world in government where only about 56% of the policy analysts have some graduate or professional education. For those working in NGOs, the level of formal education is even lower with 51% holding a senior degree and 44% with a lower level one (Evans and Wellstead, 2013). These results suggest that the range of qualifications found in the internal and external parts of the professional analytical community differ, with policy consultants tending to be more highly qualified based on graduate and professional accreditations than policy analysts in government or those working for NGOs.

This is important because the type of policy tools used in formulation, all other things being equal, is influenced by the level of formal education of the actors as some techniques require more advanced statistical, language, and other skills than others. More relevant to our analysis than general educational levels, however, are

the differences in specialized training in specific subjects like public policy and, in particular, techniques of policy analysis and evaluation. Here, differences between internal and external analysts were less evident as about the same percentage of policy consultants and of policy analysts in government (40%) had taken three or more policy-related courses at the post-secondary level. However, only 20% of NGO policy workers had completed similar courses. Almost 70% of NGO workers, compared with 47% of policy consultants and 58% of governmental policy analysts had not taken any specific post-secondary courses on formal policy analysis or evaluation. Hence, *ceteris paribus*, NGO analysts were the least likely to be prepared to undertake analyses requiring the most analytically sophisticated techniques.

Areas or subjects of training also differ among respondents. This is important as specialized subject knowledge may make up for gaps in formal training in more general analytical techniques and practices. For policy consultants, the top five specializations for university degree were Economics, Business Management, Engineering, Political Science, and Public Administration. These five fields (allowing for multiple degrees) accounted for about 85% of degrees conferred. By comparison, the five leading degree areas for internal policy analysts were Political Science, Business Management, Economics, Public Administration, and Sociology, in that order. These accounted for about 60% of degrees (allowing for multiple degrees) conferred, with a broad range of other social science, law and humanities degree accounting for the remaining 40% of credentials (Howlett and Newman, 2010). The top five fields for NGO-based policy professionals were General Social Sciences, Business Management, Arts and Humanities, Political Science, and Public Administration (Evans and Wellstead, 2013).

Similarities in these fields of study can also be observed. For example, Business Management features highly in all three, but overall many analysts in government tend to be educated in Political Science and Public Administration, consultants in Economics and analysts working for NGOs in Sociology, Arts, and Humanities. This underscores a gap in training in all venues in technical areas such as the Natural Sciences, Engineering, or Law, which is often thought to comprise a sizable component of all three groups, and suggests that specialized training in specific problem areas does not serve to make up for lack of knowledge of general appraisal techniques, especially in the NGO case.

Further survey questions inquired into specific aspects of the organization of policy work in each area which could also help bolster or overcome gaps in training. Working in larger groups, for example, may allow specialized knowledge held by a few workers to be more broadly utilized than when workers work alone or in very small groups. Here, policy consultants (84%) and NGOs (68%) were found to be more likely to work in groups of 1–5, with only 10% of consultants and 15% of NGOs part of work groups of 6–10 (Evans and Wellstead, 2013). This contrasts with policy analysts working in government where almost 65% work in units of 5–10 employees and only 30% in groups of less than five full-time equivalent employees (Table 6) (Howlett and Newman, 2010). This suggests that whatever skills

Table 6. Comparison of working group size between analysts, consultants and NGOs.

Working group size	Policy analysts (%)	Policy consultants (%)	NGOs (%)
Groups of 1–5	30	84	68
Groups of 6–10	65	10	15

Table 7. Policy-related tasks undertaken by analysts, consultants and NGOs.

Policy-related tasks (Top three)	Policy analysts	Policy consultants	NGOs
1	Research and analysis (93%)	Research and analysis (83%)	Consult with stakeholders (96%)
2	Provided advice (92%)	Provided advice (77%)	Identify policy issues (94%)
3	Prepare briefing notes or position papers (91%)	Provided options on issues (61%)	Consult with decision-makers (91%)

consultants and NGO workers have individually represents the sum of the policy formulation knowledge they can bring to bear on a subject, while policy analysts in government are much better positioned to access different sources of knowledge than those acquired through their own training.

This variation in organization is reflected in the kinds of roles or tasks policy workers in these different venues are most likely to undertake. The top three policy-related tasks undertaken by external consultants comprise research and analysis (83%), providing advice (77%), and providing options on issues (61%). However, along with policy development, these actors have to fulfill functions of project management (48%), communications (41%), and program delivery (36%). Policy analysts working in government are more focused and higher percentages of analysts undertake research and analysis (93%), provide advice (92%), and prepare briefing notes or position papers (91%). By comparison, the tasks in which NGO-based analysts most commonly engage are consulting with stakeholders (96%), identifying policy issues (94%), and consulting with decision-makers (91%) (Evans and Wellstead, 2013) (see Table 7).

Regarding their preferred analytical techniques, this question was only asked in the surveys of external consultants and analysts in government and not for NGOs. From a list of 20 policy-related analytical techniques, the top two techniques employed by policy consultants were brainstorming (70%) and consultation exercises (67%), much like policy analysts in government. However, the third choice is quite different and revealing, with focus groups (57%) being the third most used technique among consultants rather than risk analysis (68%) as it is for internal analysts (see Table 8).

Table 8. Policy-related analytical techniques employed by analysts and consultants.

Policy-related analytical techniques (Top three)	Policy analysts	Policy consultants
1	Brainstorming (91%)	Brainstorming (70%)
2	Consultation (75%)	Consultation exercises (67%)
3	Risk analysis (68%)	Focus groups (57%)

Table 9. Similarities in analytical techniques employed.

	Analysts (%)	Consultants (%)
Similarities (within 7%)		
Specific analytical technique(s) used		
High use (>50%)		
Consultation exercises	67.5	66.7
Cost-benefit analysis	53.6	55.0
Expert judgments and elicitation	47.8	53.4
Scenario analysis	50.3	47.3
Cost-effectiveness analysis	41.7	41.7
Medium use (>10% and <40%)		
Problem-mapping	31.1	33.8
Financial impact analysis	38.3	31.8
Decision/probability trees	22.9	29.5
Environmental impact assessment	27.6	22.4
Robustness or sensitivity analysis	15.9	18.1
Low use (<10%)		
Preference scaling	7.0	6.4
Free-form gaming or other policy exercises	6.2	3.8
Markov chain modeling	0.8	1.8

A fuller description of the techniques used by policy analysts and policy consultants, and a comparison of similarities and differences is set out in Tables 9 and 10. In terms of similarities in the analytical techniques used, policy analysts and policy consultants both have high usage (over 50%) of consultation exercises, cost-benefit analysis, expert judgements and elicitation, scenario analysis, and cost-effectiveness analysis. As for differences in analytical techniques employed by these two groups (with high usage of over 50%), analysts were more likely to use brainstorming and policy consultants to use focus groups.

These results support the earlier findings that significant differences exist between the three groups of internal governmental, NGO and policy contract

Table 10. Differences in analytical techniques employed.

Specific analytical technique(s) used	Analysts (%)	Consultants (%)	Difference
High use (>50%)			
Brainstorming	82.5	69.7	Analysts + 12.8
Focus groups	37.8	57.3	Cons + 19.5
Medium use (>10% and <50%)			
Check lists	60.1	33.3	Analysts + 26.8
Development of sophisticated modeling tools	11.2	26.7	Cons + 15.5
Low use (<10%)			
Monte Carlo techniques	1.5	10.4	Cons + 8.9
Process influence or social network diagrams	8.1	14.2	Cons + 6.1

workers in terms of training and work practice. Significant differences between NGO-based workers and the other two groups exist in education and tasks, and these findings also reveal some important differences between internal workers and external consultants in terms of appraisal techniques employed.

Conclusion

Until recently, only very weak, partial, dated, and usually anecdotal, information was available on the situations found in different government and non-governmental venues with respect to the activities of policy analysts operating within them. The findings set out above provide some of the first detailed insights into similarities and differences found in these areas. The findings provide evidence of the existence of significant differences in the internal and external distribution of capacities and analytical techniques and practices across different parts of the Canadian policy advisory system. These findings have significant implications for understanding policy formulation in Canadian government and for the role played in it by advice stemming from the NGO and private sector, and more generally.

Overall the data presented here suggest that government, as a whole, exhibits an uneven distribution of capacities, technical capabilities, and utilization practices across different organizational and thematic venues. The data show that some departments and agencies – such as Finance – enjoy favorable circumstances, which allow them to practice sophisticated analytical techniques while others may only seldom undertake such techniques depending on various factors such as their task environments. Beyond this, differences also exist in the nature of the internal and external training analysts receive, their job expectations and work descriptions, the nature of the issues they commonly face and the tasks they undertake in their work. These differences are profound and also permanent in the sense

that workers are content with current practices and differences and are not advocating wholesale changes or any convergence in analytical styles or tools.

A second issue investigated was whether or not, or to what extent, internal and external advisors and analysts differed from each other in terms of their background and work. New data presented above suggest the capacities and techniques of analysis practiced by analysts in government consulting and in non-government venues are different from those found internally. Formal education levels, disciplinary background and policy-related training are not the same in venues outside of government – between NGO-based analysts and those employed as consultants – and are not the same as the distribution found internally. There is some indication of a complementary relationship between internal analysts and consultants, as in general the consultants are more highly educated and trained relative to analysts and therefore can bring a different skill set to formulation processes (Howlett et al., 2014; Lindquist, 2009; Lindquist and Desveaux, 2007). On the other hand, the NGO sector is very under-developed by comparison with either of the other groups and is unlikely to either replace or supplement them.

Although the full implications and origins of these differences in tool use and policy work across venues remain to be clarified, they indicate a pattern of increasing sophistication in analysis and policy work as one moves from the non-governmental sector to the governmental one and within government from more socially involved agencies to more economically oriented ones, with policy consultants capable of augmenting and extending internal activities if requested to do so. While additional cross-national studies are needed to determine how common is this pattern, it is compatible with most of the limited work done to date examining the situation with respect to policy advice, policy formulation and the utilization of analytical techniques in countries like Australia (Weller and Steven, 1998), the Netherlands (Hoppe and Jeliazkova, 2006) New Zealand (Boston et al., 1996), the UK (Page and Jenkins, 2005) and the US (Hird, 2005) which have also found evidence of the existence of a more sophisticated division of policy labour than often assumed to exist among the various parts of the policy advisory systems found in those jurisdictions.

Notes

1. A subordinate hypothesis would be to expect that some aspects of non-governmental capacities could be used to bolster gaps in the governmental level, and possibly vice-versa, so that the relationship between the two components of the policy advisory system would be a complementary, synergistic one, rather than a purely duplicative or redundant one. Thus as John Halligan suggested:

   The conventional wisdom appears to be that a good advice system should consist of at least three basic elements within government: a stable and reliable in-house advisory service provided by professional public servants; political advice for the minister from a specialized political unit (generally the minister's office); and the

availability of at least one third-opinion option from a specialized or central policy
unit, which might be one of the main central agencies (Halligan, 1995: 162).

This is a subject of another research project currently underway among the authors.

2. A Westminster-style parliamentary democracy, Canada features a very decentralized
form of federalism in which 10 provincial (and to a lesser extent, three territorial)
governments exercise exclusive control over significant areas of governmental activity
including education, urban affairs, healthcare, natural resources and many important
social welfare programs (Howlett, 1999). Other important areas such as immigration,
agriculture, criminal law and environmental policy are shared with the federal govern-
ment. While the territorial governments and some provincial ones – such as Prince
Edward Island with a population of only 140,000 – are quite small, others such as
the Province of Ontario (population 13,000,000) are as large or larger than many
national governments. Given this circumstance, data were collected from two online
sets of surveys: one covering federal employees and the other covering the provincial
and territorial governments.

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