**October 18, 2011**

**ONGOING SHORT-TERM PERFORMANCE MEASUREMENT AS A PREDICTOR OF LONG-TERM OBJECTIVES ACHIEVEMENT BY GOVERNMENT PROGRAMS - A CANADIAN CASE STUDY**

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**Introduction[[4]](#footnote-4)**

Since public sector performance cannot be assessed against the private sector bench-mark of profitability, it falls to governments to conduct periodic in-depth program evaluations to assess the extent to which long-term success has been achieved from their program activities. “Success” in this context is related to effectiveness in achieving the stated objectives of individual publicly-funded programs and services. There is the parallel requirement that the results achieved must be efficient – so as to avoid excessive budgetary costs in the public domain.

The need for such information places enormous stress upon government evaluation activities. In theory, the evaluation function should provide timely, important feed-back information as part of results-driven accountability by departments and agencies for expenditures of public funds. Further, evaluation findings are intended to provide guidance in improving the performance of existing programs. Evaluations should also have the potential to make an important input to decisions regarding the allocation of scarce resources, and in addition should play a role in providing “lessons learned” for developing future policies and programs to respond more fully to citizens’ needs.

However, as has been well documented[[5]](#footnote-5), the program evaluation function frequently encounters significant difficulties in producing timely, comprehensive, and reliable results. It is argued in this paper and illustrated in its Case Study that, to respond to these difficulties, periodic in-depth program evaluations need to be supplemented and enriched by strategically-designed ongoing operational performance measurements that are predictive in nature – and capable of being continuously updated. [[6]](#footnote-6)

**Evaluation as a Lag Indicator**

The program evaluation function across governments is, by design, periodic and retrospective in nature (i.e. it is a lag indicator). Due to its in-depth focus, it is time-consuming and costly to implement (in the case of many larger programs, requiring a period of up to eighteen months to two years to complete, and involving considerable budgetary resource outlays). In the case of the Canadian federal government, evaluation is intended to operate on a five-year cycle, involving an arm’s length program results-measurement function located within each individual department and/or agency[[7]](#footnote-7). In this way, the evaluation function encounters limitations that are inherent in its own design.

If there are any significant ongoing issues with a program’s effectiveness or efficiency, there is likely to be a considerable (and costly) time-lag before the situation can be identified and confirmed. Also, while periodic evaluations can play a role in the government’s overall accountability to Parliament, within individual departments and agencies prevailing turnover levels among managers result in a considerable dilution of any internal results-driven accountability regime (based on even a five year evaluation cycle - when it is achieved).

**Challenges of Implementation**

Further, because of logistical complexity, heavy costs, and limited availability of qualified evaluation staff, many departments and agencies encounter significant difficulties in respecting the five-year time-cycle faced by each organization to meet the requirement to evaluate the full range of its programs.

For example, in the 2009 Report of the Auditor General of Canada dealing with the federal government’s evaluation function, Canada’s national Audit Office unequivocally acknowledges[[8]](#footnote-8): “Evaluation coverage of programs is limited” with “a low proportion of total program expenses evaluated between the 2004-05 and 2007-08 fiscal years”. (Among departments examined, the average annual percentage of program expenditures covered ranged from five to thirteen percent over the period examined. At such a rate, the time requirement for full program expenditure coverage by the evaluation function in the departments assessed would range significantly in excess of five years[[9]](#footnote-9)). Viewed as a lag indicator in the context of such time requirements, even when evaluation produces useful results measurement, it is the equivalent of “closing the stable door long after the horse has left” – leaving in its wake a trail of sub-optimal operational activities and program design deficiencies that are slow to adjust.

Further, the 2009 Report of the Auditor General of Canada, which was tabled before Parliament, has also concluded that even when evaluation finally does produce results-measurement findings, the quality and reliability of the data utilized frequently leave a great deal to be desired. For example, the Report states: “Departments did not adequately assess effectiveness”[[10]](#footnote-10). “Often departments have not gathered the performance information needed to evaluate whether programs are effective”[[11]](#footnote-11). “In effect, the (low) rate of program coverage (referred to above) was even lower because many of the effectiveness evaluations (reviewed as part of the Report) did not adequately assess program effectiveness”[[12]](#footnote-12).

The Report goes on: “The heads of evaluation (in the departments surveyed) confirmed that the performance information needed to evaluate whether programs are cost-effective and are achieving expected results was often insufficient”[[13]](#footnote-13). For example, in approximately one-third of the evaluations examined, the assessment of program effectiveness was primarily based on interviews with program staff and stakeholders[[14]](#footnote-14) (raising concerns as to whether the results perspective produced would be likely to be sufficiently well-balanced to be fully reliable).

It cannot be claimed that the above problems are simply the result of initial implementation difficulties, since in Canada the evaluation function at the federal level has been in operation (in one form or another) for a period well in excess of thirty years. In many cases, these difficulties appear to occur because of the need “to cut corners” due to timing and cost pressures which the logistics of in-depth periodic evaluations can involve – particularly when evaluations are undertaken on a stand-alone basis and are not adequately supported by strategic ongoing performance measurement. Thus, the difficulties with the evaluation function are strongly entrenched and, to a considerable degree, appear to be inherent in the function itself. Moreover, these issues are not a question of lack of organizational recognition of the function’s importance; responsibility for the function is lodged at senior levels within individual departments and agencies. Further, the function is conducted on an arm’s length basis; is subject to clearly structured processes through Treasury Board Policy; and has linkages in the context of the implications from the *Federal Accountability Act*.

**The Case for Ongoing Operational Performance Measurement as a Lead Indicator**

It is time to consider that a large part of the present problem relates to inherent measurement difficulties, involving measurement frameworks, measurement methodologies, and a tendency to have considered evaluation as distinctly separate from ongoing operational performance measurement. As part of this disconnect, operational performance measurement has also tended to focus on stand-alone output indicators instead of developing linkages with evaluations through measures that are useful in predicting long-term outcomes. A new approach is required that integrates the benefits from ongoing operational performance measurement with periodic in-depth results through program evaluation.

There are major benefits to be derived from considering ongoing performance information as an important complement to the evaluation function. It can be strategically designed to include a series of benchmark indicators along with short-term feedback information in areas linked to future, long-term, program success. Such predictors can legitimately be regarded as lead indicators - if the problems they identify are left untreated in the short-term, there will be a longer-term cumulative effect by the time the program is subject to its periodic five-year in-depth evaluation. Such lead indicators can then be updated annually and form a data input on a cumulative basis to a program’s periodic five-year evaluation.

Under such an analytic framework, neither evaluation nor operational performance measurement would be considered separately on a stand-alone basis. Rather, they would function as an integrated whole – with several important benefits:

* Annual program feedback based on lead indicators would serve as an early warning system to enable policy makers and program managers to adjust and fine-tune programs much more rapidly, with accompanying improvements in effectiveness and efficiency;
* Management accountability systems would become much more robust and effective, based on a more timely assessment of performance, including lead indicators. This would greatly strengthen the importance of results-driven accountability within government organizations;
* Measurement methodologies would be strengthened as results measurement would be subject to ongoing challenge and review, as part of the strengthened accountability process;
* Not just quality, but also availability, of data input to longer-term periodic evaluation analysis and findings would greatly improve – easing time pressures on the requirements related to the periodic evaluation cycle (five-years);
* Findings from the periodic in-depth evaluations would provide a feedback loop to confirm and, where necessary, fine-tune the ongoing operational performance lead indicators. In this fashion, the key findings from the evaluation would have a more extended application than when simply used on a stand-alone basis. (Program officials are frequently dismissive of detailed retrospective evaluation findings just a few months after they have been developed – on the grounds that coverage is “dated” (e.g. extending back as much as some two years and unlikely to be updated again for several future years until the next periodic evaluation).

A full illustration of how this integrated system would function is outlined in Exhibit One.

**EXHIBIT ONE**

**RESULTS-DRIVEN ACCOUNTABILITY**

**PROPOSED INTEGRATED SYSTEM OF EFFECTIVENESS MEASUREMENT**

**INPUT TO FUTURE EVIDENCE-BASED POLICY / PROGRAM DEVELOPMENT**

**LONG-TERM PROGRAM**

**RESULTS / EFFECTS**

**DEPTS/ AGENCIES DELIVER**

**PROGRAMS / SERVICES**

**PRODUCES OUTPUTS/ OUTCOMES / IMPACTS**

**OPERATIONAL PERFORMANCE MEASUREMENT (ANNUAL/ ONGOING) - MEASURES OUTPUTS / SHORT-TERM EFFECTS; LEAD INDICATOR OF LONG-TERM SUCCESS**

**PROGRAM EVALUATION (IN-DEPTH / PERIODIC (EVERY FIVE YEARS)) RETROSPECTIVE – LAG INDICATOR OF LONG-TERM IMPACTS / RESULTS**

**EFFECTIVENESS-BASED INFORMATION INPUTS**

**FEEDBACK LOOP TO CONFIRM / REFINE LEADING INDICATORS**

**EARLY WARNING SYSTEM: MANAGEMENT PLANNING / ACCOUNTABILITY TOOL (OPERATIONAL BENCH-MARKS / PLANNING TARGETS / OPERATIONAL ADJUSTMENTS)**

**RELIABLE, HIGH QUALITY EVALUATION INFORMATION ON RESULTS ACHIEVED MADE AVAILABLE TO PARLIAMENT AND CANADIANS: RESULTS-DRIVEN ACCOUNTABITY FOR PUBLIC FUNDS SPENT**

**Case Study Application of Ongoing Performance Measurement as Lead Indicators: The Public Service Commission of Canada**

To test the possibility of developing lead indicators using ongoing operational performance data in an evaluation-linked context, the present Case utilized annual operational performance statistics developed by the Public Service Commission of Canada. The Commission has oversight responsibilities for the staffing activities of some eighty federal departments and agencies, and accounting for approximately 125,000 staffing actions annually.[[15]](#footnote-15)

In 2003[[16]](#footnote-16), legislation was passed that resulted in a major reform of the federal government’s staffing system. The role of the Public Service Commission was confirmed and new provisions were introduced to protect merit in the staffing process and non-partisanship in the public service. The legislation in its preamble sets out the expectations as to the system’s operation, based on the following features: (a) a highly delegated arrangement providing individual departments and agencies with authority to staff; (b) to be operated fairly; (c) transparently; (d) with equality of access; and (e) with appropriate representation of employment equity groups – all to be independently safeguarded by the Public Service Commission.

While the Public Service Commission has formally delegated its authorities to individual departments and agencies, it is still required to answer annually to Parliament on the performance of the system. A periodic evaluation approach aiming at a five-year cycle would not meet this requirement; instead reliable annual data were required that would provide early indications of any problems in the operation of this highly delegated system.

As part of the legislative reform, extensive consultations were undertaken with respect to implementing the required changes, not only in terms of its operations (outputs), but also in terms of the results to be achieved (outcomes), as set out in the statute. With a central emphasis on management accountability across departments and agencies, the Public Service Commission set out a Staffing Management Accountability Framework that defined the accountability and measurement system against which performance would be assessed. (See: Annex Two).

The framework as outlined in the Annex sets out the Key Change Areas and differentiates between progress with respect to: (a) intended effects that are more operational in nature; and (b) those involving short-term outcomes. The Model assumes that progress on operational performance measures involving: (i) Delegation of staffing to Deputy Heads of departments; (ii) Planning for staffing and monitoring results; (iii) Organizational HR support systems; and (iv) Organizational accountability for results – will produce desired changes in outcomes achieved. From a management and operational perspective, establishing these linkages means that changes in outcomes can be achieved by changes in more operational measures. The evidence for the existence of these linkages was tested by means of the regression analysis set out in the following pages.

The assessment of the values imputed to the four variables was evidence-driven and was undertaken by Public Service Commission officials as part of its oversight function, based on the following scale: “Strong”; “Acceptable”; “Opportunities for Improvement”; “Requires Attention”. In addition to being evidence-driven, the Public Service Commission assessments are subject to extensive discussions with the organization involved as part of the assessment process.

The lead indicators selected serve as an “early warning system”. Problems in these areas were thought likely to undermine the efficiency of staffing processes (a key area of concern) – as measured by “time-to-staff”[[17]](#footnote-17).

**Empirical Analysis Based on Leading Indicators Selected**

The results were assessed by means of regression analysis on an individual department/agency basis - covering nearly sixty percent of all departments and agencies (i.e. those where fully comprehensive operational performance data were available). These departments and agencies account for in excess of 90 percent of all staffing actions filled internally (within the government) for 2007-2008. The design and coverage of the data package were assessed at the pre-collection stage in terms of their potential usefulness as lead indicators that could be linked to key evaluation concerns.

It should be emphasized at the outset that it is necessary to regard the regression analysis as a “continuous work-in-progress”. The plan is to update and refine the regression framework as data improvements, along with extended coverage, are developed. Nevertheless, even in this first phase, the regressions powerfully demonstrate the usefulness of the lead indicators approach.

**The Regression Variables** – Table One summarizes the specifications and findings. (For more detailed specifications and definitions, see Annex One)

**TABLE ONE**

**REGRESSION SUMMARY (OLS)**

Government of Canada: Impacts on the Efficiency of Departments’ and Agencies’ Staffing Systems Resulting From Management Performance re: HR Planning; Management Accountability Processes; and HR Support Systems Within Each Organization

(selected departments and agencies, 2007 – 2008)

Dependent Variable: Time-to-Staff (in calendar days) – Permanent Positions; Filled Internally (within the federal government); Single Staffing Processes[[18]](#footnote-18).

|  |  |  |
| --- | --- | --- |
| **Possible Explanatory Variables** | **Regression Coefficients (“t” values)** | |
| **Model A** | **Model B** |
| Ratio Staffing Actions: Employees | -128.25 (-3.05\*\*) | -135.15 (-2.81\*\*) |
| Ratio HR Specialists: Staffing Actions | -13.79 (-3.03\*\*) | -13.35 (-2.55\*\*) |
| Ratio HR Specialists: Employees | 14.26 (2.23\*\*) | 14.23 (1.95\*) |
| HR Planning (=1 if needs improvement/ attention; = 0 otherwise) |  | 6.14 (0.62) |
| Results Management Accountability System (=1 if needs improvement/ attention; = 0 otherwise) | 22.97 (3.47\*\*) |  |
| Temporary Workers - Ratio Casual Staffing: Total Staffing Actions | -76.44 (-1.93\*) | -42.28 (-0.9) |
| Temporary Workers - Ratio Term Staffing: Total Staffing Actions | 91.72 (2.08\*\*) | 82.90 (1.64) |
| Constant | 192.90 (9.28\*\*) | 197.89 (8.00\*\*) |
| R2 | 0.511 | 0.367 |
| P-Value | 0.000 | 0.005 |
| Departments / Agencies | 46 | 46 |

(\*) p less than 0.10; (\*\*) p less than 0.05

“Key Findings On Progress To Date In The Operational Implementation Of The *Public Service Employment* Act”; Informetrica Ltd., June 19, 2009, Ottawa.

* Two separate models were examined using data related to time-to-staff with respect to the staffing of permanent positions and involving only single staffing processes[[19]](#footnote-19) (as opposed to collective (multiple) staffing processes). The regressions also focused on staffing actions filled internally (from within the government). Time-to-Staff (in calendar days) was identified as the dependent variable, representing the type of key indicator of efficiency performance that would be used in an in-depth periodic evaluation of the federal government’s staffing processes.
* In terms of possible key explanatory variables examined, the more comprehensive indicator of the adequacy of the results management accountability system (including HR Planning) within each individual department/agency was included under Model A; while in Model B the HR Planning indicator alone was used. (The intention was to examine whether planning effects could be considered separately from the more comprehensive accountability regime of which they would be a part). In both cases, the variables were dichotomous (i.e. = 1 - if needs improvement/attention; = 0 - if otherwise).
* Staffing Support Capacity (HR specialists) was tested for two variables: (a) Ratio of HR Specialists/Staffing Actions in each organization; and (b) Ratio of HR Specialists/Total Employees in each organization. Both (a) and (b) were included to assess any differences in time-to-staff outcomes, particularly where a department’s HR Professional capacity was focused essentially on the operational staffing function (Variable (a)) – as opposed to being applied also in other less directly related functions (Variable (b)). Data adjustments were made to approximate these differences[[20]](#footnote-20).
* While the time-to-staff variable deals with the filling of permanent positions, aggregate variables dealing with the extent of utilization of temporary workers were also included for each department/agency. (Intended to assess the significance of situations where frequent repeat filling of temporary positions could be being used as a mitigating strategy in the case of individual departments and agencies with significant time-to-staff issues in filling permanent positions)[[21]](#footnote-21).

**Regression Findings**

* The findings support Model A (Table One, p (9) above) (i.e. There is a strong consistent significant statistical association between: (a) deficiencies in a department’s internal results management accountability procedures in the area of the HR planning and staffing functions; and (b) reduced overall efficiency in departmental staffing processes (i.e. increased time-to-staff). It is this more comprehensive consideration (which combines HR planning with accountability) rather than the adequacy of HR planning alone[[22]](#footnote-22) that is of key importance.
* Departments and agencies assessed as having less than acceptable combined HR Planning and Results Management Accountability regimes experience, on average, an increased time-to-staff of about 23 days compared to organizations with a stronger management performance in this area.
* With an average time-to-staff of some 132 days for single staffing processes for the federal government as a whole in 2007-2008, this represents a significant issue.
* Increases in HR capacity in individual departments (i.e. Ratio of number of HR Specialists/Staffing Actions) can also reduce time-to-staff, provided that the capacity is focused directly on the staffing function.
* The performance measurement regression findings provide insights concerning the use of temporary workers (in organizations where the staffing processes for permanent workers take excessive amounts of time). Reduced efficiency among departments and agencies in staffing processes for permanent positions (increased average time-to-staff) appears to be associated with an accompanying parallel increase in the use of temporary (Term) staffing actions by the organizations involved. (This may be due to inadequate planning and management etc and the temporary employment nature of the Term hirings involved - as an alternative “stop-gap” response, pending the development of more permanent staffing solutions. Further, to the extent that additional temporary Term staffing activities reflect inefficiencies in an organization’s basic staffing processes for permanent positions, there is a related increase in the number of staffing actions necessary to respond to the organization’s overall requirements, adding to total staffing costs faced by the organization involved).
* The above result does not, however, extend to very short-term employment (Casual) staffing activities (very short-term hires where there are few procedural requirements). Based on the regression findings, hires of this type do not in general appear to be a short-term alternative to staffing permanent positions in situations where there are efficiency problems within an organization.

The key point to be made about all of the above is that there was no need to wait for a five-year evaluation to identify such conclusions – the assessment was made based on just one year’s operational performance data involving lead indicators, and providing timely feedback, thereby enabling policy/program adjustments to be made more rapidly. Further, the regression findings can be updated annually and improvements monitored. And of course, these findings can be strategically linked to accompanying key areas of concern in the context of an in-depth evaluation as part of the five-year cycle.

**Wider Implications**

With respect to such longer-term evaluation concerns, there are further findings resulting from the analysis of ongoing performance indicators.

* The “drag” on the efficiency of departmental staffing processes with problems involving HR Planning and Results Management Accountability Systems can have wider implications for the performance of the organization as a whole, and for the overall efficiency and effectiveness of the federal government’s day-to-day business operations.
* Around some 70 percent of departments and agencies included as part of the regression analysis had problems with the operational/management accountability regimes related to their HR functions.
* When individual vacancies in these departments are filled through internal recruitment, a further vacancy is created within the organization, which in turn has a strong likelihood of being filled internally. (Only 15 percent of indeterminate vacancies (permanent positions) are filled by means of external hiring processes (i.e. outside of government), and some 75 percent of positions staffed from within government are filled within the same department/agency.
* As a consequence, there is risk of compounding effects with respect to wider impacts resulting from increased time-to-staff - as filling a vacancy internally triggers the need for yet another staffing action within the same department, and so on. This process will continue until a position is filled from outside the individual department/agency or the government. The implication is that the effects of such compounding factors can be several times greater than just the initial staffing actions involved, resulting in a more widespread, cumulative “efficiency drag” for the organization and for the government as a whole. As the repercussions work through the system, cumulative effects can include inhibiting and delaying organizations’ ability to respond and adapt to the needs of stakeholders and clienteles[[23]](#footnote-23).

**Changes Resulting from the Performance Measurement Findings**

The importance of sound planning has always enjoyed widespread acceptance as a key to robust management accountability. Further renewed efforts were undertaken to improve in this area as a result of the empirical demonstration, in quantitative terms, of the impact of sound HR planning as part of a rigorous organizational accountability regime in producing improvements in time-to-staff.

In the context of the above, the Head of the federal Public Service directed additional review work to be undertaken, and held Deputy Heads of departments and agencies directly accountable for the quality of their organizations’ planning and the accompanying follow-up. Flowing from this, subsequent separate reviews of planning have shown continued improvement. Public Service Commission reviews have also shown improvements in the planning of staffing, but also drawing attention to the need for greater detail in plans to staff - to produce still further improvements.

Discussions with Parliament based on the quantitative analysis developed as part of this Case Study highlighted the point that operational management changes within the existing system can be used to produce required improvements without the necessity of recourse to further statutory or regulatory change.

To date, improvements in planning and management accountability, combined with the clear linkages demonstrating the impact on the improved efficiency of government staffing processes, have been accompanied by positive results in reducing average time-to-staff. While progress has been uneven, this should not be unexpected during a transition phase aimed at bringing about significant changes in government-wide practices affecting the full range of federal departments and agencies.

Based on the most recent (2010) data available[[24]](#footnote-24), it would appear that departments and agencies have focused their efforts to date on improving collective staffing processes[[25]](#footnote-25), with major efficiency gains resulting in a decline in average time-to-staff of nearly 20 percent between 2008 and 2010. In contrast, overall time-to-staff performance for single staffing processes has remained largely unchanged throughout the same period.

Based on the wider implications identified by this Case Study (where internally filled vacancies can trigger further staffing actions), the cumulative reductions in time-to-staff over the period noted above do represent progress. However, while the developments to date are encouraging, there clearly is still significant scope for further improvement[[26]](#footnote-26).

**Conclusions and Assessment**

With respect to the Public Service Commission, the Case Study demonstrates that the use of ongoing short-term operational performance measurement can provide timely, predictive results that meet accountability needs and provide direction to make necessary changes to management practices. The success of the approach depended on defining the underlying framework of expectations for success. This framework was widely discussed and accepted beforehand. It was further formalized as part of individual delegation agreements with departments and agencies signed by Deputy Heads and the Public Service Commission. This is not a process set at arm’s length from operational activities, but an integral part of the management process – and as a consequence is best positioned to result in necessary change.

The underlying ongoing performance measurement model clearly underlines the importance of sound management practices as a leading indicator of key success. The empirical test of the model confirms its ability to serve as a leading indicator. It clearly indicates where management should put its effort and subsequent results showed measurable improvement.

As demonstrated by the Public Service Commission’s experience, the analysis of ongoing performance measures and the identification of lead indicators are bringing about changes in the approach to measuring results achieved. Instead of emphasizing exclusively a single periodic comprehensive evaluation, analysis is being undertaken more extensively on an ongoing, as-needed basis. All of the performance measures identified in the framework are monitored, and as part of the Commission’s Annual Report to Parliament, analysis of the type illustrated in this Case Study is undertaken. Parts of the performance model are analyzed selectively, and hence do not deal with potential trade-offs in longer-term outcomes – particularly between measures of efficiency and effectiveness. Under the legislation, the requirement to meet both obligations is there. Periodic evaluation continues to be important with respect to the comprehensive results framework. (For example - to track legislation’s intended long-term effects; to assess the continued relevance of its rationale; and, as well, to examine possible efficiency/effectiveness trade-offs involved – with a view to making necessary adjustments over time, based on the additional experience acquired).

Ongoing performance measurement analysis provided an important contribution to the Public Service Commission’s Five-Year Statutory Review of the legislation. The experience at the Public Service Commission points to the success of using ongoing performance measurement as a tool to monitor program performance that results in timely management change and intervention. The success of this arrangement depends on:

* Having a sound understanding of the program and being able to define what key success factors are;
* Defining “success factors” in terms of systems and practices that are necessary, along with pre-conditions for success in short-term outcomes;
* Having a structured system of ongoing performance measurements in place. These are not perfect but need to be redefined and modified with experience, while maintaining elements of comparability;
* Undertaking analysis, testing the model as illustrated in the present Case Study;
* Undertaking periodic evaluations of the integrity of the underlying model.

The result is a more iterative approach that provides sound ongoing information that is timely and serves important accountability and management purposes.

ANNEX ONE

REGRESSION ANALYSIS (OLS)

Detailed Specifications and Definitions

REGRESSION COVERAGE:

Forty-six departments/agencies (accounting for approximately 90 percent of staffing actions filled internally - within the federal government).

DEPENDENT VARIABLE

Time-to-Staff:

Proxy for efficiency of staffing processes with respect to individual departments/agencies. Time-to-staff estimates derived from the average number of calendar days for staffing actions in each department and agency based on the time from the date of the advertisement to fill a position and the date of the first notification of appointment – applied to internal staffing actions for indeterminate (permanent) positions during the period covered (2007 – 2008).

Applied to single (as opposed to collective) internal staffing processes - because, statistically, this sub-group of staffing actions provided the clearest insight concerning the performance of each department’s HR Planning and Results Management Accountability systems, etc. (in terms of comparative impacts on time-to-staff). Time-to-staff comparisons among organizations are much more complex where collective (multiple) staffing processes are also involved. Where the regression pointed to problems with time-to-staff within the sub-group selected, then overall HR Planning and Accountability processes within the departments and agencies concerned were taken to be “at risk” in efficiency terms for all staffing actions.

POSSIBLE EXPLANATORY VARIABLES

1. Ratio Staffing Actions : Employees - Number of staffing actions for each organization - as a ratio of organization’s level of total employees during the period covered . Contextual/control variable - to examine the possibility that higher ratios among departments and agencies are accompanied by reduced time-to-staff (one possible explanation would be the increased urgency to maintain / expand the organization’s operations).
2. Organization’s HR Support Capacity (1): (Ratio HR Specialists/Employees) - Number of HR Specialist employees in each organization as ratio of the organization’s level of total employees during the period; (General measure of HR support capacity).
3. Organization’s HR Support Capacity (2): (Ratio HR Specialists/Staffing Actions – Estimated number of HR Specialist employees in each organization as ratio of the organization’s total staffing actions during the period covered (more refined estimate of HR support capacity variable). Not possible to estimate precisely from available data – i.e. numbers of HR Specialists dealing directly with individual staffing actions versus others less directly involved[[27]](#footnote-27) in HR processes. Differences between Staffing Specialists involved in: (a) direct staffing activities; versus (b): direct plus indirectly related staffing activities - were estimated for the regression in an approximate fashion by means of adjusting (downwards) for outliers (extreme ratio values) in the case of (a). Regression estimates using (adjusted) HR Specialists/Staffing Actions were then contrasted with (unadjusted) HR Specialists/Employees - in terms of differing impacts vis-à-vis the Dependent Variable (e.g. value and sign of regression coefficients - and statistical significance).
4. Organization’s HR Planning Function - Dichotomous with respect to each organization: (=1 if needs improvement/attention; = 0 otherwise); Involves evidence-based assessment by Public Service Commission analysts in consultation with the department/agency concerned. Performance Scale applied: (a ) “Strong”; (b ) “Acceptable”; (c ) “Opportunities for Improvement”; (d ) “Requires Attention”. (Key factors for consideration related to areas such as: Staffing strategies linked to business plans and the HR Plan; Extent to which staffing strategies meet key requirements; Degree of planning detail developed; etc.). (For purposes of the regressions, an analyst’s assessment producing (c ) or (d) would be given an assessment value =1; an assessment of (a) or (b) would be given an assessment value = 0).
5. Organization’s Results Management Accountability Systems – Dichotomous with respect to each organization: (As in (iv) above, =1 if needs improvement/attention; = 0 otherwise); Involves evidence-based assessment etc.; (Builds on HR Planning, as outlined in (iv) above. Key additional considerations include factors related to areas such as: Variance between plans/targets of HR staffing activities versus actual; Are these assessed? Are they sufficiently explained? Are they clearly reported? In-house assessment of any problems plus corrective action. Possible explanatory variables (v) and (iv) above incorporated separately as part of two different regressions to test for different impacts on time-to-staff (efficiency of processes) associated with these functions.

1. Temporary Workers – Ratio Casual Staffing : Total Staffing Actions Casual Staffing = a short-term employment option to hire. In general, under the *Public Service Employment Act*, a casual worker cannot work more than 90 working days in one calendar year in a given organization. (Contextual variable – to examine the extent to which organizations resort to certain types of temporary workers as a mitigation strategy in the face of inefficient staffing processes for permanent staffing actions. Examines if there is a statistical association involving an organization’s increased time-to-staff for permanent staffing actions and a parallel increased dependence on temporary (Casual) staffing actions. Intended also to provide comparisons with other Temporary Worker options - see (vi) below – Term Employees).
2. Temporary Workers – Ratio Term Staffing : Total Staffing Actions Term Staffing = Staffing actions for engaging workers for a specified period (versus (a) Indeterminate (permanent) staffing actions, and (b) Casual staffing (for very short-term hires with limited staffing process requirements). Regression examines the parallel use of temporary (Term) staffing processes as a mitigating strategy for organizations functioning with inefficient permanent staffing processes. (Increased ratio of Terms : Total Staffing Actions co-existing with increased levels of time-to-staff in organizations with less efficient staffing processes.)

ANNEX TWO[[28]](#footnote-28)

1. President, Public Service Commission of Canada [↑](#footnote-ref-1)
2. Former Director General, Human Resources and Skills Development Canada [↑](#footnote-ref-2)
3. Director, Data Services and Analysis Directorate, Public Service Commission of Canada [↑](#footnote-ref-3)
4. Disclaimer: It should be noted that the conclusions reached in this analysis represent the personal views of the authors, and should not be construed as necessarily representing the position of the Government of Canada. The authors wish to acknowledge the important input made to this work by M. McCracken, Senior Partner, Informetrica Ltd., Ottawa [↑](#footnote-ref-4)
5. See, for example, the 2009 Fall Report of the Auditor General of Canada; Chapter 1 – Evaluating the Effectiveness of Programs. [↑](#footnote-ref-5)
6. The form of analysis contained in this Paper should be regarded as a particular application of “Predictive Analytics” specifically undertaken in a government context. See, for example, other applications under “Strategic Use of Analytics in Government”, (2008): Thomas Davenport and Sirkka Jarvenpaa; IBM Center for The Business of Government, Washington. [↑](#footnote-ref-6)
7. Policy on Evaluation. Treasury Board of Canada Secretariat, 2009. The application of the Policy with respect to the five-year cycle is intended to be fully operational in 2013. The 2009-2013 period is intended to be a transition phase producing progress towards this goal. The 2009 Report of the Auditor General of Canada indicates that: “Departments expressed concern about their capacity in 2013 to evaluate all direct program spending , as required in the 2009 Policy on Evaluation”. Op. cit. p (5). Also see footnote 9 below. [↑](#footnote-ref-7)
8. Op.Cit. – p (11) Key Heading; plus Exhibit 1.4 [↑](#footnote-ref-8)
9. The Auditor General’s Report emphasizes under “What we found” (p (5), first paragraph): “To ensure full coverage (departments and agencies) will have to evaluate on average 20 percent of their direct program spending each year of a five-year cycle”. Most of the organizations examined (over the 2004-05 to 2007-08 period) fell between only one quarter and one half of the 20 percent requirement. Clearly, prevailing rates of coverage fall far below the 20 percent figure, involving a significant shortfall vis-à-vis what is felt to be timely in meeting effectiveness information requirements for government accountability purposes, etc. [↑](#footnote-ref-9)
10. Op. Cit. p (13); “Key Heading” [↑](#footnote-ref-10)
11. Op. Cit. p (4); “What we found” [↑](#footnote-ref-11)
12. Op. Cit. p (4); “What we found” [↑](#footnote-ref-12)
13. Op. Cit. p (14) Para. 1.35 [↑](#footnote-ref-13)
14. Op. Cit. p (13) Para 1.34 [↑](#footnote-ref-14)
15. Approximately 73,000 were indeterminate (permanent) positions, with roughly 62,000 filled internally (i.e. within the federal government). In addition to this, some 16,000 staffing actions were for (temporary) specified terms, some 13,000 were for the hiring of students, and 20,000 were for casual (very short-term) workers. (2007-2008 PSC operational data). [↑](#footnote-ref-15)
16. Legislation came fully into force in 2005. [↑](#footnote-ref-16)
17. “Time-to-Staff is defined as the number of calendar days to staff a permanent vacancy internally (from within the federal government). [↑](#footnote-ref-17)
18. Stated more technically: “Single Notification of Appointment” (in contrast with more than one Notification of Appointment for collective staffing processes). [↑](#footnote-ref-18)
19. This sub-group of staffing actions was selected because statistically it provided the clearest insight concerning the performance of each department’s management processes and accountability systems, etc., in terms of comparative impacts on the duration of the staffing processes. Comparisons are much more complex where collective (multiple) staffing actions are involved. Where the regression pointed to time-to-staff problems with the sub-group selected (single internal staffing processes), the overall HR Planning and Management Accountability processes of the departments and agencies involved were taken to be “at risk”. [↑](#footnote-ref-19)
20. Such differences cannot be measured directly. They were roughly approximated for by adjusting the regressions for outliers dealing with data input values with respect to Ratio Variable (a). [↑](#footnote-ref-20)
21. In addition to the variables listed, a further control variable (Ratio Staffing Actions: Employees) was added for each department/agency to examine situations where a high ratio had the result of rendering staffing actions more urgent and might be reducing time-to-staff. Elsewhere, it will be noted that the delegation arrangements variable was not included as part of the regression, since it did not demonstrate widespread differences in assessments across departments and agencies. [↑](#footnote-ref-21)
22. Notwithstanding that HR Planning is an obvious component of any Results Management Accountability System for the HR function. However, taken by itself, a well performing HR Planning function appears to be a necessary, but not sufficient, pre-condition for improving efficiency. [↑](#footnote-ref-22)
23. Organizations with problems of this type may engage in mitigating strategies to compensate for the difficulties that such “drag” presents. The use of temporary workers has already been considered (above). An attempt to examine the excessive use of overtime could not be pursued due to issues of data reliability (e.g. under-reporting). Elsewhere, additional regression analysis indicated that organizations with efficiency problems in the staffing area tend to rely more on acting appointments. Acting appointments are, by design, only a temporary solution and may involve sub-optimal matches between skills and job requirements (with productivity implications). Excessive dependence on acting appointments may also raise concerns over diluting the Merit Principle – a cornerstone staffing value to promote confidence in the integrity of the federal public service. [↑](#footnote-ref-23)
24. Based on the Public Service Commission ‘Survey of Staffing – Managers (2010)’, covering internal staffing processes. In addition, the trend line for combined internal and external staffing processes is similar. [↑](#footnote-ref-24)
25. A possible explanation for this may be that the average time-to-staff for collective processes exhibited the greatest potential for efficiency improvements. In 2008, collective staffing times took, on average, roughly one-third longer than in the case of single staffing processes and, as a group, collective staffing processes are numerically more significant. [↑](#footnote-ref-25)
26. Based on the initial regression findings regarding single internal permanent staffing processes, along with supplementary analysis undertaken by the Public Service Commission. [↑](#footnote-ref-26)
27. E.G. Dealing only indirectly through related areas such as developing policy directives, policy applications, oversight, and the like. [↑](#footnote-ref-27)
28. The Staffing Management Accountability Framework has been updated since 2008. [↑](#footnote-ref-28)