



## CPRN DISCUSSION PAPER

### Government Compensation: Issues and Options

By

Morley Gunderson

July 1998

Human Resources in Government Project Series  
Discussion Paper No. W|03



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## **Human Resources in Government Project**

The overriding goal of CPRN's Human Resources in Government Project is to generate new applied knowledge that will help the federal and provincial governments to redefine the strategies, policies, and procedures needed to transform the public service. The project assumes that this transformation must include the development of both efficient and innovative workplaces and a healthy, motivated, and skilled workforce.

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# Government Compensation: Issues and Options

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# GOVERNMENT COMPENSATION: ISSUES AND OPTIONS

Morley Gunderson<sup>1</sup>

## 1. Introduction

Issues associated with government compensation, and particularly comparisons with non-government compensation, continue to attract policy attention. That attention is legitimate since government pay being out of line with private sector pay has important implications whether government pay is "too high" or "too low." Excessive pay can lead to excessive government expenditures and hence higher taxes or budget deficits, both of which are keenly resisted today. It can lead to political backlashes and employment cuts that can create economic hardship and jeopardize the effective delivery of government services. Excessive pay may also have inflationary spillover effects to the private sector. In the other direction, pay that is "too low" can lead to problems of recruitment, retention and morale, all of which can also jeopardize the effective delivery of government services. Clearly, "getting it right" is important in this area.

The purpose of this paper is to outline the various issues and options that are involved in "getting it right" with respect to the compensation of government employees. The emphasis is on outlining the various dimensions of the issues that are involved, and reviewing the literature with respect to what we know and do not know about government compensation, with the intent of setting out a research agenda for filling the gaps. While the focus is on government compensation, most of the issues apply to the broader public sector. The analysis should shed light on the following illustrative questions:

- What are the background factors and pressures that make this a particularly important policy issue today?
- What are the essential differences between the government and private sectors that can have implications for compensation issues, and will these differences lead to an upward bias in government compensation or can they also lead to a downward bias?
- What are the essential features of the internal labour markets of government employers with respect to such factors as recruiting, promotions and the use of non-standard workers, and what implications do they have for government compensation?
- What is the magnitude of the government-private sector pay differential, and how much of that reflects differences in the pay-determining characteristics between workers in the government and private sectors, and how much reflects differences in pay for workers with the same wage determining characteristics?
- How has the pure government-private sector pay gap changed over time, and how does it vary by such factors as gender, occupation, skill level, level of government, and between government employees and employees in the broader public sector to include health, education and social services?

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- Are there differences in the "fringe" benefits or non-wage aspects of employment between government and private sector workers, and if so how does this affect comparisons on a total compensation basis?
- What are the implications of pay and employment equity and unionization for government compensation?
- Given the theoretical determinants of the public-private sector pay differential, and the empirical evidence on that differential, what is likely to happen to the differential over time?

The paper begins with a discussion of the background factors that are motivating the increased importance and attention to the issue of government compensation. The theoretical factors influencing government-private sector compensation differences are then discussed, with an emphasis on how they affect the gap, its changes over time, and the degree to which it may vary by such factors as skill level, level of government and function of government. The existing empirical literature is then discussed, emphasising the pros and cons of alternative empirical procedures. The paper concludes by summarizing what we know empirically about the compensation gap between government and non-government employees.

## **2. Pressures for Increased Policy Importance of Issue**

As indicated, the pressure to "get it right" with respect to public sector compensation and the importance of doing so is increasing for a variety of reasons. These pressures, outlined in more detail in this section, also often have important implications for government wage determination.

### Concern Over Deficits, Taxes and Expenditures

Governments are under extreme pressure to reduce their deficits. This can be done only by increasing taxes or reducing expenditures. Tax increases are almost political "non-starters" and are being met by strong resistance even if they were to lead to deficit reductions or well- defined public or social infrastructures. That resistance would be even stronger if the tax increases were simply to go to increases in pay for inputs into the production of government services. If tax increases are out of the question, then expenditure reduction becomes the only option. Expenditure reductions associated with paying lower prices for government inputs takes on particular appeal politically since it is not associated with an obvious and direct reduction in government services or infrastructures.

### Inter-jurisdictional Competition for Investment and Jobs<sup>2</sup>

Governments are under increasing pressure to be efficient and cost effective in their delivery of services because their taxpaying base is increasingly mobile and sensitive to tax increases. As aptly stated by Betcherman (1993, p.14): "Where 'footloose' capital can change its landing spot, does an individual country realistically have the room to manoeuvre to implement a policy regime that is more costly than those of its neighbours and competitors"? Increased trade liberalization enables companies to locate in countries of low taxes and regulations and export back into the higher cost countries. Global competition makes them increasingly sensitive to cost increases, especially those associated with tax increases that do not apply to their competitors. International financial markets can respond instantly to investment opportunities. Improved transportation and communications

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<sup>2</sup> For an elaboration of these points see Gunderson (1998).

enables plant location decisions to be more influenced by such elements as taxes and the cost-effective delivery of government services, and less tied to markets, transportation nodes or raw resources. The shift from manufacturing to services and to the information economy exacerbates that tendency. Professional and skilled labour is also more mobile to "escape" excessive taxes. In such circumstances, countries and jurisdictions within countries are under more pressure to compete to attract business investment and the jobs associated with that investment. That jurisdictional competition can take the form of reduced government regulations as well as taxes that could go to pay "excessive" government compensation. It should be emphasized, however, that the pressure exists to get prices correct in both directions, since compensation that is "too low" can jeopardize the effective delivery of government services and infrastructures that can be necessary to compete in the global economy.

### Pressure to Emulate Private Sector Practices

Private sector external labour markets have undergone substantial restructuring -- indeed transformations -- often involving mass layoffs and plant closings, wage freezes and concessions, substantial income losses for displaced workers, periods of high and prolonged unemployment, stagnant real wages, and growing wage inequality. Rightly or wrongly, there is often the feeling that the government should not be immune from similar pressures. Sometimes this takes the form of a "knee-jerk" reaction: "if it was good for (or forced on) us, it should be good for (or forced on) them." At other times it takes the more constructive form that there likely are lessons to be learned from private sector practices, especially to the extent that they meet the market test.

The internal labour markets and human resource and workplace practices of the private sector have undergone similar transformations in almost all dimensions. Job classifications have become broader with employees expected to do a wider array of tasks. Hierarchical vertical structures have often given way to more horizontal structures with reduced supervision and greater internal responsibility, especially for quality control with a customer orientation. Whole layers of middle-management have often been eliminated and downsizing has been prominent, often leading to increased workloads for the remaining personnel. Employee involvement in workplace issues has increased, as has the use of workplace teams. Labour-management co-operation has been emphasised, in part to enhance quality and to facilitate joint survival in a more competitive world. Increased emphasis has been placed on general training, multi-skilling and lifelong learning to enhance flexibility, and multi-tasking to facilitate job change. Non-standard employment has increased in various forms: part-time work, contractual work, subcontracting, self-employment, temporary-help agencies and telecommuting or home-based work. Often this is geared to providing a just-in-time workforce to meet the firm's just-in-time delivery needs. Tying pay to performance has been emphasised at all levels -- the individual, the workteam, and the organization itself. Flexible worktime arrangements have been adapted in various forms including compressed workweeks and flexitime. Increased emphasis has been placed on relationships with both "upstream" consumers (i.e., customers) and "downstream" suppliers. Mergers and acquisitions have been common, as have joint ventures and alliances that are often formed around the life of a particular project. Separate business units are often formed within larger organizations, with their survival being dependent on "meeting the bottom line." They are often given considerable flexibility with their personnel decisions, including those pertaining to compensation. Pattern bargaining has often broken down, with increased attention being paid to regional and local differences as well as the ability to pay.

These pressures and changes in the private sector have led to similar pressures for change in the government sector. The public sector has responded, often in a similar fashion, although the degree of that response in the public sector is only now under more investigation and analysis. Many of these changes also have direct and indirect implications for compensation. For example, arbitrators are often under increased pressure, sometimes through legislative requirements, to pay attention to ability to pay. Pressure exist to allow regional variation in pay as influenced by market conditions. Old patterns are no longer necessarily followed. Pressure also exists to allow some flexibility to match, at least in a proportionate sense, the substantial pay increases that have occurred for executive talent, especially if it is successful in important restructuring endeavours.

### Reinventing Government and Performance Budgeting

Related to the pressures that are occurring in the private sector, the public sector is increasingly under pressure to "reinvent government"<sup>3</sup> with an emphasises on continuous quality improvement, work teams and decentralized responsibility and decision making. As well, government agencies and departments are under increased pressure to have their funding and operating grants based on performance measures. As stated by Warrian (1995, p. 4) "The introduction and implementation of performance measurement systems within and outside of the budget process are a major change to the public sector landscape in the 1990s. They represent an important part of the larger change in the public sector: the change from managing *inputs* to managing *outputs* and *outcomes*" [emphasis in original]. Although such measures are difficult and elusive to develop in the public sector, they are evolving and increasingly being applied. The increased application of such measures to employers and organizations obviously will filter down to their wanting to apply performance pay to their employees. If the budgets of government organizations and departments are increasingly determined by performance measures, there certainly will be similar pressure to have the pay of their employees depend on productivity and performance measures developed and applied to employees.

### Privatization

Pressures for privatization are developing, especially in situations where it is easier to monitor the output or service provided as opposed to the input of labour. It is generally easier not to renew a contract for a privatized service than it is not to renew a contact for a government employee, and it is easier to put pressure to reduce contracting prices than to reduce compensation for internal employees. Even the threat of privatization is sufficient to influence behaviour. In commenting on the growing trend towards privatization in the United States, Warrian (1995, p. 2) states: "The message is clear and direct: if your agency is not producing, you face imminent threat of being put out of business and the activity or contract being turned over to the private sector." In commenting on New Zealand, he states (p.5): "government departments now run as separate corporations -- independent contracting agencies whose services are 'purchased' by the central government". To the extent that these pressures come to fruition, government departments will tend to have a core of employees who focus on policy advice and on co-ordinating and managing the actual service delivery that will increasingly be done through subcontracting and privatization.

These pressures have direct and indirect implications for compensation. Certainly the threat of privatization can have a constraining influence on wage settlements. Premiums will be paid for

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<sup>3</sup> Gore (1993), Osborne and Gaebler (1992).

persons with the managing and co-ordinating skills to deal with the external service delivery and internal policy advising. Wage polarization will likely increase within the public sector just as it has in the private sector. If the political constraints make it difficult to pay low market determined wages for the "low-end" jobs, they will likely be contracted out. It is politically easier to pay a low price for a purchased service (and let the subcontractor pay the low wage) than it is to directly pay a low public sector wage.

### Increased Emphasis on Market Forces

The previously discussed pressures are related to a more general tendency to emphasize market forces and incentives in the design and implementation of policy. To a certain extent this is forced on policy makers through the imperatives of global competition and inter-jurisdictional competition for business investment and the jobs associated with that investment. There appears also to be growing recognition that the private actors will respond to the economic incentives of programs and policies, and that it is sensible to try to harness those incentives rather than to simply work against them with ever increasing layers of regulation.

In the workers' compensation area, for example, there is increasing emphasis on experience rating to encourage employers to reduce accidents and injuries. In the area of labour adjustment, emphasis has been placed on active labour market policies such as training and mobility to facilitate the reallocation of labour from declining to expanding sectors, rather than passive income maintenance programs like unemployment insurance, which can discourage such reallocation.

Whether these policies are appropriate or not, they are increasingly emphasised in policy circles. Such an emphasis on market forces could lead to more attention in government wage determination to critically assess such factors as national or standardized wage policies that can lead to shortages and surpluses, or to increased emphasis on shortages and queues in general as indirect measures of the appropriateness of government compensation relative to private sector compensation. An emphasis on market forces may also lead to a more critical assessment of the government policy (discussed subsequently) to "underpay" at the high-paying levels and "overpay" at the lower paying levels. Subcontracting and privatization are other obvious manifestations of increased attention to market forces. An increased emphasis on user charges can also augment the pressure to pay the employees who provide those services according to their market demand for those services, given that the demand for labour is derived from the demand for the products or services produced by labour. Allowing private providers to compete with government providers will certainly put more pressure on government providers to pay their employees according to market criteria so as to compete with the private providers. In essence, an increased emphasis on market forces in the design and implementation of policy or in the provision of government services, is likely to provide similar pressure to pay more attention to market forces in determining the pay of government employees.

### Pressure on Collective Bargaining and Appropriateness of Wagner Model

In part because of the increased globalization and mobility of capital and business investment, unions have been on the defensive, declining in many industrialized countries. Of particular importance to Canada is that in the United States, our major trading partner, unionization has declined from around 30 percent of the workforce in the mid 1960s, to around 15 percent today (Riddell, 1993).

While unionization rates in Canada have generally been maintained at around 35 percent of the workforce, pressures clearly exist making it difficult to maintain that density. That pressure also exists in the public sector, where unionization rates are much higher, in the neighbourhood of 80 percent, and where they are perhaps more fragile since the establishment of public sector unionization was dependent so much on legislative initiatives beginning in the mid 1960s.

Pressures on public sector unions are exacerbated by the fact that there is increased questioning of the relevance of the Wagner model of collective bargaining, which was the foundation for private sector unionization and which tended to be "imported" into the public sector. Warrion (1995), for example, argues that the traditional Wagner Model of collective bargaining has severe limitations for dealing with the new issues of restructuring and job security. Those limitations include: a multiplicity of fragmented bargaining units that often inhibit unions from "speaking with one voice"; a legalistic orientation with separation of employee and employer interests that inhibits co-operation; and narrow job classifications and seniority-based work rules that stifle group-work and employee involvement in service delivery.

This issue can have important implications for government compensation. The pressure on unions can lead to moderation in wage demands, and to a focus on providing services to their members that do not increase labour costs and that can facilitate the joint survival of the union and the organization. Pressure will also exist to provide flexibility in wage structures to deal with shortages and surpluses, and to be flexible in allowing performance based pay as opposed to simply using seniority. Whether these pressures will be inhibited by the strictures of the conventional Wagner model is an open question.

#### Wage Restraint in Return for Reduced Layoffs

Certainly one of the most contentious issues in collective bargaining is the extent to which it is feasible to negotiate a degree of job security in return for wage restraint. It has always been somewhat of a puzzle in labour economics as to why negative demand shocks seemed to be absorbed by layoffs falling on a few workers, rather than on small wage concessions spread over the larger workforce; that is, on why downward demand shocks are absorbed by "quantity" rather than "price" adjustments. Risk averse workers would seem to prefer to absorb small wage reductions to minimize the risk of a layoff whereby they would lose all of their labour market earnings. Even if they were not subject to the layoff, they may be required to absorb the work previously done by those who were laid off. Employers also would seem to prefer the wage restraint over layoffs so as not to lose the human capital and experience embodied in their workforce.

Possible answers to this question shed light on the viability of wage restraint in return for job security. Unions may rationally confront their employer with the need to absorb downward demand shocks through layoffs rather than wage restraint precisely because the layoffs are also costly to the employer. This in turn can deter employers from bluffing about the true nature of the demand shock and their ability to pay. As well, the costs of layoffs may be absorbed somewhat by the availability of income supports such as unemployment insurance. UI supports layoffs, but not wage or even hours reductions. Two-earner families may also be more willing to risk the possibility of a layoff given the "time crunch" they face with respect to family time. Union policies may also be heavily influenced by "insiders" who are at little risk of being laid off, and who may be reluctant to engage

in wage restraint in the vague hope that it would save the jobs of others. They may even hope that the downsizing would occur in the form of generous early retirement packages from which they could benefit.

A number of changes are occurring that are making it more likely that wage restraint may occur in return for a degree of job security. The realities of downsizing are such that employers are not bluffing, but are willing to engage in layoffs especially because much of the work is simply reallocated to remaining workers or to non-standard workers who are often paid less. All parties now seemed better informed about the realities of global competition and budget deficits. Recent reforms to UI means that the income losses are not as offset through UI benefits. The downsizing has often been so deep that it may even affect "insiders", and even if their employment is secure their job requirements may become more onerous, especially if they are required to absorb the work of those who were laid off. As well, if wage restraint is not voluntarily negotiated in return for a degree of job security, it may simply be imposed on "insiders" in such forms as "social contracts" whereby days of unpaid leave are mandated.

### Demographic and Workforce Changes

Demographic changes are also having a profound impact on compensation issues. The workforce is "greying". The baby-boom population, born between 1946 and 1966 and that earlier created problems of youth unemployment and then clogged promotion opportunities, is now entering its 50s where issues of pensions and early retirement are more prominent. That workforce is often "expensive" having received seniority based wage increases. This would be exacerbated to the extent that they are also in receipt of deferred compensation (discussed subsequently) whereby they are "overpaid" relative to their productivity when they are older, in return for having been "underpaid" relative to their productivity when they were younger. Such a compensation profile could deter unwanted turnover and encourage positive work behaviour. Employers have a short-term incentive to "renege" on that arrangement when they begin to pay the deferred compensation or wages in excess of productivity. They are deterred from doing so, however, by the fact that the negative reputation may inhibit their ability to recruit.

That incentive, however, may be changing for a number of reasons. To the extent that downsizing is permanent, and non-standard employees and the unemployed are available, there is less need to recruit permanent, long-term employees. Furthermore, the large "expensive" aging workforce means considerable cost saving from "reneging" on any implicit long-term employment contract.

The aging population is also placing different demands on the public sector delivery system and hence in the demands on the workforce that provides those services. For example, issues of health care and eldercare will be more prominent. Pressures on the compensation system may arise to facilitate the reallocation from areas of declining demand to areas of growing demand.

The prominence of the two-earner family also has important implications for compensation and especially fringe benefits. Joint coverage can mean that one party may prefer cash wages to fringe benefits, and both would prefer flexibility or a "cafeteria" of choice in many fringe benefits. Such families often suffer from the "time crunch" of balancing worktime with household responsibilities. They are often willing to trade-off cash wages for more flexibility especially in their worktime

arrangements. These create opportunities for "win-win" situations, although they also create coordinating and other problems that have to be dealt with.

### Intergenerational Equity Issues and Passing Costs to Future Generations

Issues of intergenerational equity are also becoming more prominent because of the aging workforce<sup>4</sup>. The problems are especially acute with respect to the unfunded liabilities associated with pay-as-you-go programs such as the Canada/Quebec Pension Plan and workers' compensation schemes. In such programs, the current generation of workers pays for the benefits of the older generation that is now benefiting from the program, with the understanding that the younger generation will pay for their benefits when they access them. Such an inter-generational social contract works when population, productivity and real wages grow at the same rate. However, it is jeopardized when productivity and real wage growth is stagnant, and when a small population of taxpayers is expected to pay for the benefits of a large group of baby-boomers who will soon be drawing on the system.

Similar intergenerational equity issues can also arise with respect to government compensation. As discussed subsequently, there can be a tendency for current generations of taxpayers to try to save on current government compensation costs by agreeing to forms of deferred compensation where at least part of the costs are shifted to future generations. The cost shifting could be in subtle forms such as seniority-based wage increases, job security, liberal pensions, indexed pensions, and generous early retirement promises.<sup>5</sup> In the private sector, when these promises are made, the costs are ultimately born by the firm and its stockholders. In the public sector, however, they are born by future generations of taxpayers -- and they hopefully occur when some other political party is in power!

This pressure can lead to the small subsequent cohorts trying to reduce the deferred obligation that was passed to them. The adjustments would not be overt in such forms as cancelling the pensions of civil servants. However, reduced indexing of pensions, fewer retroactive enrichments, and declining job security and seniority based pay may be possible. There may also be a temptation for the future generations to pass even larger deferred obligations to their future generations, although at some point the current generation of government employees may well begin to question whether they will continue to be "paid" from such Ponzi or "chain letter" schemes.

### Wage Spillovers to the Private Sector and Impact on Inflation

Increased attention is also being paid to government wage settlements because of their potential

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<sup>4</sup> For a current discussion of these issues in the Canadian context see the various studies in Corak (1998).

<sup>5</sup> As strongly stated by Courchene (1997, p. 331): "allowing a federal civil servant to access Ottawa's early retirement package at age 50 is probably roughly equivalent to putting a million dollars in his/her pension fund. And many of these retirees will reenter the labour force, often as consultants to governments. The Receiver General of Canada (1995, pp. 1.8, 1.16) indicates that the federal government's pension plan, which is a pay-as-you-go system, has unfunded liabilities of over \$100 billion.

spillover effect to private sector settlements (evidence on this will be discussed subsequently). The concern is that such general wage increases can jeopardize competitiveness in the global economy and further fuel inflation. If stringent monetary or fiscal policy, in turn, is applied to constrain inflation, then the impact on Canada's already high unemployment rate becomes of concern. These issues are of particular relevance given the apparent ability of the United States to curb *both* inflation and unemployment (albeit at the expense of growing wage inequality).

The importance of spillover effects to the private sector is exacerbated by the concern that the private sector may be hit by a "double whammy": higher taxes to pay for higher public sector settlements; and higher wages for their own employees if there is a positive spillover effect.

### Concern Over Possible Over-reaction

The previous discussion highlighted the different pressures that were affecting the public sector, mainly in the direction to encourage restraint on government wages and employment. There is another set of pressures, however, that raise concerns in the other direction. That is, concerns can arise over the possibility that restraint in wages and employment can go "too far" and leave an emaciated and demoralized public sector.

This could be particularly disastrous if a well functioning public sector infrastructure is a key ingredient of private sector competitiveness in a global economy. The issue is particularly important since restructuring necessitates that wages be set correctly to facilitate the reallocation of government employees to achieve the efficient restructuring and to provide proper incentives.

The potential for this to be a problem in the public sector is exacerbated by the possibility that some of the downsizing and cost-cutting that occurred in the *private* sector may have been an over-reaction. This is especially the case with respect to senior employees who embody considerable institutional specific knowledge as well as networks -- attributes that may be irreplaceably lost if they are no longer employed. As well, there is considerable questioning of the "low-road" strategy of simple cost cutting, especially with respect to labour because of its ability to respond in various quality dimensions such as effort, performance and commitment. The notion that you "get what you pay for" can be particularly relevant when the seller can adjust the quality of what you "get." This has led to increased recognition that labour is a resource to be properly utilized and not simply a cost to be minimized.

In the government sector, for example, excessive wage restraint and reduced new hiring can lead to renewal problems, with its associated reductions of new talents, skills and ideas. At the executive level, a brain-drain to the private sector may occur, given its higher compensation, perquisites and the possibility of stock options and the "grand-prize" of the CEO compensation package.

### **3. Determinants of Government-Private Compensation Differences**

The previous discussion highlighted the changing pressures that are motivating the attention to government compensation as an important policy issue. In this section, the various factors that can influence government non-government compensation differences are outlined. Understanding these underlying causal determinants is important for two main reasons. First, it is important for

predicting future changes that can be expected to occur as these causal determinants change. Second, it is necessary to determine the appropriate policy response, if any, so that the response can deal with the causes and not just the symptoms.

The general theoretical determinants of government non-government compensation differences are outlined. Emphasis is also placed on how these factors may be changing over time, and therefore have implications for the time pattern of the pay gap, as well as how that gap may vary by such factors as skill level, level of government and public sector function. The theoretical discussion of this section will set the stage for the discussion of the empirical evidence which will follow.

### Political Constraint Versus Profit Constraint

First and foremost, the government sector is subject to political constraints and not profit constraints. It is true that the market imperatives of global competition and inter-jurisdictional competition for business investment and the jobs associated with that investment have placed new restraints on actions of governments. The bond market and bond ratings can exert an extremely important discipline on the actions of governments, especially at the local level where the governments are under a "hard" budget constraint in that options of deficit financing and "printing money" may not be available to finance expenditures.

Nevertheless, governments do not go "out of business" if they fail to "meet the market test," as is the case in the private sector. They may lose political capital in the political arena, but voting tends to be over a myriad of issues. Furthermore, government employees can be an effective interest group, focussing on their wages and employment, compared to the diffuse interests of taxpayers in this area especially when the later vote on a myriad of issues.

It is true that with the "taxpayer revolt" political capital can be gained by taking a hard-line on government expenditures, and this has been occurring in recent years. The hard-line with respect to pay can be particularly appealing since this does not entail any direct reduction in programs that are often valued by the public. Nevertheless, there is an asymmetry in that labour market forces ensure a floor on government wages, since recruiting and retention require that wages not fall too far below the competitive norm. Yet those labour market forces do not ensure a ceiling if government employees are overpaid. For these reasons, there is somewhat of a bias towards overpayment as opposed to underpayment in the case of government compensation; labour market forces are more likely to dictate a floor as opposed to a ceiling.

The political constraints are also likely to dictate a "twist" or "public pay compression" in government compensation, with a pay advantage at low paying levels, and a disadvantage at higher paying levels.<sup>6</sup> Even if market forces enabled them to do so, governments would be under pressure to be a model employer and not pay low wages to its less skilled workforce. Issues of equity and fairness can survive in the political market place more than in the economic market place. Furthermore, in a one-person, one-vote framework, more political support may be garnered by

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<sup>6</sup> Discussions and evidence on this point is given in Goldstein and Ehrenberg (1976), Gunderson (1995a), Hartman and Weber (1980), Hundly (1991), Long (1982), Morley (1977), Miller (1996) and Pederson et. al. (1990). Recent Canadian reports in this area include the Strong report (Treasury Board, 1998).

overpaying larger numbers at the low end of the pay scale (Hundly 1991).

Similarly, governments may be under more pressure not to pay its high-level personnel comparable to the high salaries of the private sector. This is most obviously the case at the very senior levels, when compared to CEO's with their stock options. Often this constraint takes the form that public sector pay cannot exceed that of the politically elected official to whom they report.

This political constraint to "underpay" high-level officials appears more difficult to explain than the one to "overpay" low-level government employees. Skilled talent and "buying" loyalty and honesty seems as important in government jobs as in private sector jobs. A correct decision by a senior civil servant could potentially affect millions of taxpayers, just as a correct decision of a CEO can affect millions of consumers<sup>7</sup>, albeit the correct decision of a senior civil servant may be less important to the extent that it gets diffused in the political process. Whether the reasons are rational or not, the political process seems to dictate constraints at the upper end of the civil service salary level. It could be that some of the low pay at senior levels reflects disproportionately high level of fringe benefits at those levels (Moore and Newman 1991).

### Compensating Wages

Even if competitive market forces prevailed in the government sector, they would ensure an equality of *total compensation* across industries (including the private and public sectors) in the long-run for the same type of labour. This could entail considerable differences in *wages* to offset differences in the *non-wage* aspects of compensation such as job security, fringe benefits and opportunities for promotion.

In general, we tend to think of non-wage aspects of employment being better in government jobs than non-government jobs, and there are theoretical reasons why this may make sense. Job security, for example, may be necessary to get away from the patronage system whereby government employees would be replaced when a new party took power. Being a large employer, it may not be too costly for governments to be able to guarantee employment security from its large portfolio of jobs. Guaranteeing employment security over the business cycle may also be easy given that many government services are countercyclical in nature. For similar reasons, governments may be able to guarantee a reasonable degree of promotion opportunities. Government employment may also provide the non-monetary attraction of involvement in the political process. At times, it may even be a viable "apprenticeship" period that can yield subsequent higher remuneration in the private sector where information on the workings of the political process may be valued, especially for higher level civil servants.

To the extent that the non-wage aspects of employment are better in government than non-government jobs, then wages would be expected to be lower to compensate for this difference. There are factors working in the other direction, however, to suggest that wages may be higher in

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<sup>7</sup> It is true that with global markets, the correct decision of a "superstar" CEO may now get spread over even more consumers, and this may account for some of their astronomical pay increases. In contrast, the political marketplace influenced by senior civil servants has not increased globally and may even have declined with decentralization. Nevertheless, this may explain why the salaries of top CEOs may increase relative to top civil servants; it does not explain the large difference in their salary levels.

the government sector to compensate for negative aspects of employment in that sector. As indicated previously, government employment does not hold out the "prize" of a possible super-salary, stock options or share ownership as exists in the private sector. Furthermore, to the extent that job security is no longer as prevalent in the public sector, higher wages may have to be paid to compensate for this loss of job security, raising the possibility that job cuts may not save as much money as appears at first.

### Short-Run Demand Changes

Wage differentials between the government and non-government sectors can reflect short-run demand changes. In fact, the wage differentials are the market signal that encourages the reallocation of labour from sectors of declining demand to sectors of expanding demand. The labour supply response in turn should eliminate the wage differential -- at least that portion of the differential that reflects the short-run demand change.

In the last decade, the growth in employment has been slightly higher in the public sector than the private sector; however, it differed dramatically across the different elements of the public sector. It has been above the private sector growth rate in education and especially in health and welfare, but below the private sector rate at all three levels of government. The lowest growth has been at the federal level, followed by the provincial level and then the local level (Gunderson and Hyatt, 1996, p. 246).

To the extent that these different rates of growth of employment lead to short-run wage changes, they would have a positive effect on government wages relative to private sector wages in health and welfare and in education, but a negative effect in the three levels of government, with the largest negative effect at the federal level followed by the provincial and then local levels.

### Unionization and the Elasticity of Demand for Labour

Unionization can be an important determinant of government wage differentials, especially given the much higher degree of unionization in the public sector than in the private sector (e.g., respectively around 80 percent versus 20 percent as discussed previously). Unions can be especially effective when the demand for labour is inelastic with respect to wages such that a wage increase will not lead to a large reduction in the demand for labour.

The demand for public sector labour may be inelastic because the demand for the services produced by public sector labour is price inelastic; that is, wage increases that lead to price increases can be passed to consumers or taxpayers without their reducing their demand for the service because the service is often essential -- that is why it is provided by the public sector in the first place. Furthermore, it may be difficult to use other substitute inputs in place of public sector labour to produce the service. In fact, unions will try to restrict the use of such substitute inputs to preserve the public sector jobs. This is compounded by the fact that public sector employment often consists of professionals, and professionals are often able to control the use of substitute inputs.

While these factors suggest that the demand for public sector labour may be inelastic and hence unions would not be inhibited from going for large wage increases by the threat of a large reduction in employment, there are numerous adjustments at work, increasingly so over time so that the

elasticity of demand for government employment may be increasing over time. Taxpayers resist increases in the price of their services and alternative service delivery is increasingly common. Private security systems and even mobility to safer suburbs can be a response to the high cost of fighting crime in cities. Privatization and subcontracting can be obvious responses to higher priced public services. Computers and technology are potential substitutes for many public sector workers. As well, public services are often labour intensive, making it difficult for the organization to simply absorb the wage cost increases.

Clearly, theoretical considerations do not unambiguously indicate whether the demand for public sector labour is elastic or inelastic. Empirical evidence, however, does suggest that the demand for such labour is inelastic and the more essential the service, the more inelastic is that demand.<sup>8</sup> This in turn suggests that unions would not be inhibited from going for large wage increases by the threat that such increases would reduce the demand for labour. In fact, this would apply to any form of wage fixing, including legislative wage fixing through pay equity. This may be changing over time, however, as a variety of forces are at work making the demand for government labour more wage elastic and hence sensitive to wage changes.

### Pay and Employment Equity

Legislative initiatives such as pay equity and employment equity are more prominent in the public sector than in the private sector, and this could serve to increase government wages relative to private sector wages. Of course, this is likely to be the case especially for those groups most positively affected by the legislative initiatives.

Pay equity<sup>9</sup> requires that female dominated jobs be paid the same as male dominated jobs of equal value, where value is determined by a gender-neutral job evaluation scheme. Pay equity legislation exists in all Canadian jurisdictions except Alberta and Saskatchewan. It is largely confined, however, to the public sector, except for Ontario, Quebec and the federal jurisdiction where it can apply to the private sector. In the federal jurisdiction and in Quebec until 1997, however, it was complaints based and almost all cases have been in the public sector. In Ontario, where a pay equity plan was generally required by law whether or not a complaint had been made, the application to the private sector was later than to the public sector, and the wage adjustments were considerably larger in the public sector.

Pay equity adjustments could be an important factor in government pay since, in the cases where they have occurred, the adjustments have been substantial, typically in the neighbourhood of \$4,000 or a 20 percent wage increase, amounting to about 4 to 8 percent of total payroll. Obviously, such adjustments affect female dominated jobs, and since they are often lower paying jobs, they contribute disproportionately to increasing the pay of lower level jobs in the public sector.

Employment equity initiatives require that the internal representation of designated groups

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<sup>8</sup> Direct evidence in this area does not exist in Canada, and much of the U.S. evidence is from the 1970s (reviewed in Ehrenberg and Schwarz, 1986). Early U.S. studies include Ehrenberg (1973), and Ashenfelter and Ehrenberg (1975).

<sup>9</sup> Information for this section is from Gunderson (1995b).

throughout the occupational structure within the organization be similar to their representation in the externally available labour pool. In Canada, the designated groups are women, visible minorities, Aboriginal people, and disabled persons.

Employment equity legislation in Canada exists in the federal jurisdiction, and for federal contractors.<sup>10</sup> Formal coverage to the federal public service was made in 1996, through a revision to the Employment Equity Act. Although employment equity does not have a direct effect on wages it can have an indirect effect because it should lead to an increase in demand for the designated groups. Since the designated groups tend to occupy the lower wage jobs, this can also be a contributing factor to raising the wages disproportionately in the lower paying jobs in the public sector.

### Dispute Resolution Procedures and Regulations

While collective bargaining can be an important factor in influencing government wages, that effect is circumscribed by the dispute resolution procedure that is allowed. That dispute resolution procedure differs by jurisdiction and by public sector function<sup>11</sup>. In general, municipal employees are covered by the private sector labour relations legislation of each jurisdiction and they have the right to strike. At the other end of the spectrum, government employees are usually covered by separate statutes with a variety of dispute resolution procedures: the right to strike; the limited right to strike for employees who are not designated as essential; the choice of procedure whereby the union chooses either a strike option or arbitration; arbitration at the request of either party; and compulsory arbitration. Police, firefighters, hospital workers and teachers are sometimes covered by separate statutes and sometimes they are covered by other public or private sector statutes. The dispute resolution procedures run the gamut of those indicated above, and differ by jurisdiction and sector. In general, the more essential the service the greater the limitation on the right to strike, although the pattern is not clear cut.

While arbitration is generally designed to emulate the pay that would prevail for comparable workers in the private sector, the comparability criteria is elusive since there are often not comparable jobs in the private sector. Arbitrators may also be extensively influenced by notions of distributive justice and hence be more generous for jobs at the lower end of the pay scale, rather than paying according to market criteria which would likely give rise to greater wage inequality. Furthermore, arbitrators are likely to make comparisons with the "better" employers in the private sector. The potential for an upward bias under arbitration is especially strong where the union has the choice of procedure since strong unions would likely go for the strike option and weaker ones for arbitrated settlements that may mimic those where the strike option was exercised.

Since compulsory arbitration is not required in most of the cases, it can be said that the legal right

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<sup>10</sup> The Legislated Employed Equity Program was established in 1986 through the Employment Equity Act and applies to federal Crown Corporations and federally regulated employees with 100 or more employees. The Federal Contractor's Program was also established in 1986, applying to all firms with 100 or more employees who bid on federal government contracts worth \$200,000 or more. For a detailed exposition see Weiner (1995).

<sup>11</sup> Gunderson and Hyatt (1996) and references cited therein. Particularly detailed accounts of the federal procedures and pay policy are given in OECD (1997) and Swimmer (1995).

to strike is a possibility in most jurisdictions and for most public sector functions. As such, wage determination in the public sector can be extensively influenced by the right to strike just as it is in the private sector. In fact, the right to strike can be a more powerful force in the public sector, because the services are often essential and substitute services tend not to be available.

While this confers considerable power on public sector unions, that power is also circumscribed by various other factors. Public sector militancy notwithstanding, it may be difficult for unions to mobilize an effective strike when many of their members are reluctant to interrupt essential services, and where the notion of a public "servant" may still hold true. Most importantly, there is a fundamental asymmetry between employers in the public and private sector with respect to the cost to them of the strike. In the private sector, revenues do not come in when services are interrupted by the strike and this short-run loss of revenues and potential long-run loss of market share is a strong motivating device for employers in the private sector to settle. In contrast, in the public sector, the revenues from taxpayers are still forthcoming even though they do not receive the service that is interrupted from the strike. Public sector employers continue to receive revenues while they do not pay the wages of striking employees. This could give them a perverse incentive not to settle, especially if they can use the cost saving for other purposes. This, in turn, can reduce the bargaining power of public sector unions.

That power also has been increasingly circumscribed by a variety of other regulations. The right to strike is often limited only to non-designated employees, and this can effectively emaciate the union's bargaining power. In some situations either party can request arbitration. Governments have also increasingly issued back-to-work orders, wage controls and even the suspension of the collective agreement.

In the 1980s, for example, the federal government and a number of provincial governments adopted wage control programs that were restricted to the public sector. In the 1990s, even stronger restrictions were often applied in such forms as wage freezes, mid-contract wage rollbacks, the suspension of collective bargaining, and "social contracts" whereby mandatory unpaid days of leave were required, which effectively reduced compensation in return for a reduction of working time. Even when negotiation did go on with the union it was under the threat of unilateral action on the part of the government. Governments also increasingly imposed requirements on arbitrators to pay attention to the criteria of the organization's ability to pay.

Clearly, the strike weapon and the availability of other dispute resolution procedures can have a complicated set of effects on compensation in the public sector. While their ultimate effect may be theoretically indeterminate, it is likely that the extensive restrictions which have been placed on the bargaining power of unions in most areas of the public sector in the 1980s and 1990s should dampen government wage increases over that period.

### Efficiency Wages

Efficiency wages are wage premiums above the competitive norm and are paid to elicit positive work effort, honesty, loyalty and commitment to the organization. Organizations willingly pay such premiums because they "pay for themselves" through the positive incentive effects and reductions in unwanted turnover. They are more likely to be paid when such positive work effects are important, and when other ways of eliciting these effects (e.g., through extensive supervision) are

difficult or costly. The possibility of losing this premium can elicit the positive work incentives on the part of employees. Employees obviously prefer such wages since they are "gifts" with only the expectation of positive performance expected in return. They are not compensating wages paid to compensate for the disutility of such negative work attributes as stress or poor working conditions.

It is extremely difficult to test for the existence of efficiency wages since they are, in effect, a residual that is left over after controlling for all other possible determinants of wages. Such residuals obviously can reflect other observable factors that are not perfectly controlled for, or unobservable factors for which information is simply not available in conventional data sets.

It is possible that government wages could reflect efficiency wage premiums, in which case it would not be efficient to eliminate such premiums. This would be the case if honesty, commitment and loyalty to the organization were extremely important, and turnover was undesirable. As well, measures of performance may be difficult to gauge in the public sector since conventional measures of output are often not available, and strict supervision may not be considered the best motivating device.

Nevertheless, it is not obvious that this is any more true in government jobs than in private sector jobs.<sup>12</sup> With downsizing especially, voluntary turnover is often encouraged and not discouraged. Especially at lower level government jobs, performance can often be easily measured. To the extent that this is the case, then efficiency wage premiums may be expected to be more prominent in higher level government jobs.

### Deferred Compensation

While efficiency wage premiums would be paid over the full life of the expected contractual arrangement, deferred wages differ in the sense that they involve the "backloading" or "tilting" of compensation so that individuals are "underpaid" early in their career with the organization and "overpaid" later in their career. Over their expected lifetime with the organization this is foreseen to "net out" with expected lifetime wages being equal to expected lifetime productivity in the organization. Deferred compensation is like a performance bond, paid upon evidence of good performance, and designed to encourage "bonding."

Obviously, such a form of compensation can only exist in long-term employment relations, where employees have a degree of protection against opportunistic behaviour on the part of firms if they were to lay off workers when their pay began to exceed their productivity. Such protection can be provided by such factors as unions, seniority provisions, a history of employment security, and the reputation of the organization.

Deferred compensation is designed to encourage positive work incentives since, in effect, the

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<sup>12</sup> Based in Swedish data, Arai (1994) finds some evidence of efficiency wage premiums in the private sector but not the public sector.

organization holds the performance bond. It can encourage honesty and commitment and discourage unwanted turnover. It can be used when it is difficult or costly to monitor performance on a regular bases. Rather, periodic assessments are made, and the employee possibly promoted to a new level with a compensation increase. Alternatively, seniority based pay increases can be common, with only the most egregious performers dismissed whereby they loose their deferred compensation. The deferred compensation itself can occur in many forms: seniority based wage increases; pension accruals that occur later in life; periodic promotions; and reasonable guarantees of employment security.

Deferred compensation can exist as an efficient compensation scheme to encourage positive work incentives. As with efficiency wages, these positive effects such as loyalty and commitment may be important in the public sector, and periodic monitoring may be more feasible than constant monitoring and supervision.

There is a danger, however, that in the public sector they can occur for more negative reasons. As discussed previously, deferred compensation schemes enable current governments (and taxpayers) to save on current costs and to shift them to future taxpayers and governments -- hopefully when other parties are in power. In effect, there is no requirement for governments to "fund" their compensation costs that are "promised" into the future. The deferred compensation need not be in an explicit form such as a promise to pay a certain amount in a future year. It can occur in such forms as seniority based wage increases, liberal pension and retirement packages, and employment security -- all of which characterize many government jobs.

In the private sector, these costs would get capitalized into the value of the organization if it had extensive future compensation commitments that in effect were unfunded liabilities. In the public sector, however, this capitalization does not occur except possibly in very indirect ways. Such future commitments that would be paid for past and not future services, could negatively affect the bond ratings of governments, and perhaps the property values of taxpayers at local levels. The financial crises of New York City in the 1970s was attributed in part to a lack of restraint in public sector pay and employment that negatively affected bond ratings and property values (Inman 1981). It is doubtful, however, whether these market checks on deferred compensation would serve a sufficient constraining influence in non-crisis situations. It is also likely to be less prominent at federal levels where bond ratings are affected by a myriad of factors, and where "printing money" is more of an option.

Clearly, theoretical considerations suggest that deferred compensation may be prominent in the public sector. It may well be an efficient compensation practice, but it may also reflect the absence of both market constraints (e.g., capitalization into bond ratings and property values) and political constraints (future generations are not at the current bargaining table). In such circumstances, there may be a temptation for current governments to agree to higher deferred compensation in return for lower current compensation.

While future generations are not at the current bargaining table, they will be there to pay the costs. Their willingness and ability to do so, however, may be severely jeopardized by additional expenses they will be inheriting from an aging population, as well as the fact that these expenses and unfunded liabilities are knowingly being passed on by the current generation. Under these circumstances, the fragility of deferred compensation schemes becomes apparent.

## Firm Size

Wages tend to increase systematically with firm size. To a certain degree this reflects the fact that large firms have other characteristics that give rise to high wages. For example, they are more likely to be unionized, or to be willing to pay a wage premium to avoid the threat of being unionized. In the product market, they may have greater market power and hence ability to pay out of monopoly profits. They may be more capital intensive and pay a premium for the skill required to be complementary to the expensive capital. Large firms may have to pay a compensating wage premium for their more structured, formalized and impersonal work environments. They may be more likely to pay efficiency wage premiums for a variety of reasons: monitoring and supervision may be more difficult in a large organization; it may be more important to have the best workers because their talents can be amortized across a large organization, and because it is more important to conserve on scarce managerial time which is usually very expensive in large organizations; and because of the visibility of large organizations it may be more difficult for them to dismiss poor employees.

The empirical literature generally suggests that many of these factors do contribute to the positive relationship between pay and firms size. However, even after controlling for the effect of many of these factors, larger firms still seem to pay a wage premium over and above what they also pay because they have these other attributes that are also associated with higher pay. To the extent that many government employers are large employers, they may also be expected to pay higher wages associated with their large size.<sup>13</sup>

## Dominance of Local Labour Markets

The previous discussion referred to firm size in the market for products or services. Organizations can also be large or dominant firms -- termed monopsonists -- relative to the size of the labour market in which they operate. This is especially the case when they employ labour that tends not to have viable employment opportunities elsewhere, in part because they may be specialized or they are tied to the community. Monopsony is often associated with one-industry towns, a term that perhaps could be applied to Ottawa or Washington, D.C..

In such circumstances, these dominant employers are "wage-setters" and not "wage takers" and they are able to pay lower wages without having to worry extensively about losing all of their workforce. Because they are wage setters, they will have to raise their wage to attract more workers and they will have to pay this higher wage to their existing similar workforce for reasons of internal equity. This will inhibit them from hiring more workers and, in fact, they will have unfilled vacancies at the going wage but will not raise wages to reduce those vacancies because they will also have to pay that higher wage to their existing workforce. For these reasons, they will try to attract new recruits through non-wage mechanisms such as costly recruiting drives, paying for moving expenses, and perhaps even the regular use of "temporary" help personnel.

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<sup>13</sup> Evidence on this is discussed in Belman and Heywood (1990, 1993), Brown and Medoff (1988), and Moore and Raisian (1991).

Monopsonistic employers can be dominant employers for certain types of labour they employ and not for others. A hospital, for example, may be a dominant employer for certain types of nursing, but a competitive employer of secretaries and custodial personnel. Government may be the dominant industry in some communities but not in others that are more diversified in their employment base.

Evidence of monopsony has been found in some public sector jobs like nursing<sup>14</sup> and teaching<sup>15</sup>. As well, this is consistent with other observations from those sectors such as the persistent shortages of certain types of nursing personnel (with hospitals being reluctant to raise wages to reduce those shortages), extensive recruiting in other areas and even countries, and the desire of hospitals and school boards to merge in part so that they do not compete with each other for the same personnel.

The extent to which monopsony is prominent in other areas of the public sector is not known. Governments may be the dominant employer of certain types of labour in some communities, but they are seldom the exclusive employer. Mobility to other communities and sometimes to other occupations is possible, but it is also costly and increasingly difficult with the growing numbers of two-earner families. Even if government employers have a degree of monopsony power, their political sensitivity may make them reluctant to exercise that power and simply pay the lowest wage they can "get away with", especially for lower level personnel.

#### Convergence Towards Private Sector Practices

The previous section of this paper highlighted that the current policy interest in public sector compensation was motivated by a wide range of phenomenon: pressure to emulate private sector practices; emphasis on re-inventing government and performance-based budgeting; increased attention to privatization, user fees and subcontracting; and an increased emphasis on market forces. These factors also have implications for compensation differences between the government and non-government sectors. In particular, they will likely lead towards a convergence of public sector practices, including compensation, towards those of the private sector. Most of these practices are already prominent in the private sector, and the imperatives of globalization, concerns over the deficit and taxation, and inter-jurisdictional competition for investment and the jobs associated with that investment, means that the private sector model will likely be the dominant paradigm, not the other way around. To the extent that public sector wages were higher than private sector wages, this suggests more restraint on public sector wages and a reduction in the pay gap.

Whether this also will lead to greater inequality in pay within the public sector, as has occurred in the private sector, is an open and interesting question. If market forces are to become more prominent within the public sector, then this would suggest an increase in the pay at the higher levels, and more restraint at the lower levels, both of which would serve to reduce the salary compression that otherwise characterizes the government sector.

#### **4. Review of Existing Literature**

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<sup>14</sup> Hurd (1973), Link and Landon (1975) and Sullivan (1989).

<sup>15</sup> Currie (1991), Dahlby (1981), and Landon and Baird (1971).

Although there is a considerable empirical literature on wage differentials between government and non-government employees, that literature still leaves gaps in our knowledge. In this section, the alternative empirical procedures are first discussed, followed by a summary of what we know and do not know in this area.

### Alternative Empirical Procedures

The alternative empirical procedures are basically alternative ways of estimating the pure or net compensation differential between government and non-government employees after controlling for the impact of other variables that also influence compensation. The intent is to determine the wage that the government employee would receive if they were employed in the non-government sector. If the government wage premium is positive, it is often labelled a pure or net wage premium or "rent" in that it reflects the excess payment that the government employee receives relative to their alternative payment they would receive in the non-government sector.

#### *Comparisons in Narrowly-Defined Occupations:*<sup>16</sup>

The simplest procedure is to compare the wages between government and non-government employees in the same narrowly-defined occupation where it is reasonable to assume that the work is similar. The comparison can be made in relative terms such as the ratio of the pay of government to non-government employees. If feasible, it is desirable to make these comparisons in the same region and for organizations of the same size and for individuals of the same gender and union status so as to control for these determinants of wages.

It is not as necessary to control for factors such as age, experience, and education to the degree that it is reasonable to assume that these factors may offset each other as necessary inputs to do the work required in the same narrowly-defined occupation. For example, the work may equally done by an older person with more experience but less education, compared to a younger person with less experience but more education. What matters is that the person can do the work required in the narrowly-defined occupation.

Of course, such comparisons can be difficult because there is often no comparable jobs done in the private sector. As well, the similarity of job titles does not guarantee that the work is identical, even in narrowly-defined occupations. Furthermore, comparisons at a point in time may not capture differences in the degree of deferred compensation or non-wage attributes of the job.

In spite of these problems, such simple comparisons are readily understood and can be useful since they focus on "comparable work" at least to the extent that the narrowly-defined categories ensure

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<sup>16</sup> Examples include Belman and Heywood (1993), Hartman (1993) and Miller (1996) based in more recent U.S. data, (Field and Keller, 1976), Fogel and Lewin (1974) and Perloff (1971) based on earlier U.S. data, and Gunderson (1978) based on earlier Canadian data.

that the work is comparable. As well, they may even control for such conventionally unobservable factors as motivation, to the extent that these factors affect being categorized into a particular narrowly-defined occupation.

Comparing wages in narrowly-defined occupations can be particularly useful when comparisons are made over time<sup>17</sup>. Even if there is a systematic difference in the work done in the same narrowly-defined occupations between the government and non-government sectors, so that the absolute wage *difference* does not reflect comparable work done in the two sectors, the *change* in the gap is still likely to reasonably reflect changes in the compensation between the two sectors. One caveat to this generalization could be during periods of public sector wage controls where the restrictions on wages may lead to a substitution into non-wage forms of compensation or perhaps even to changes in the nature of the work that is done.

#### *Regression Decomposition:*<sup>18</sup>

By far the most common procedure is to estimate separate wage equations for workers in the government sector and in the non-government sector and then to decompose the average wage differential between the two sectors into two component parts: one part reflects differences between government and non-government employees in their endowments of wage determining characteristics such as education and training; the other part reflects differences in their pay for the same wage determining characteristics. The later component is labelled the pure government wage advantage or rent (if positive) since it reflects the higher pay that government employees would receive relative to non-government employees with the same endowments of human capital and other wage determining characteristics.

The procedure is as follows. Estimate separate wage equations for each of the government and non-government sectors, based on data on individual workers in each sector:

- (1)  $W_g = X_g \beta_g$  for the government sector
- (2)  $W_n = X_n \beta_n$  for the non-government sector

where  $W$  is the log of wages,  $X$  is a vector of human capital and other wage determining characteristics,  $\beta$  is a vector of estimated regression coefficients showing the return to each of the characteristics,  $g$  denotes the government sector, and  $n$  denotes the non-government (competitive) sector. For simplicity of exposition, the individual subscripts and the error terms are omitted.

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<sup>17</sup> This is the case, for example, when comparisons are made using aggregate average annual base wage increases in major collective agreements of 500 or more employees (see Gunderson and Hyatt 1996). The base wages are usually the starting wage in the collective agreement. While the level of such starting wages are certainly likely to be different between the government and non-government sectors, the changes are likely to reasonably portray changes for a given type of worker in each sector, especially over a short period of time. If comparisons are made over longer periods of time, then it may be important to determine whether the difference in the job content of starting jobs has changed between the two sectors, and whether they are representative of the wage structures in the two sectors.

<sup>18</sup> Canadian studies using this procedure include Daniel and Robinson (1980), Gunderson (1978, 1979), Gunderson and Riddell (1995), Robb (1978), and Shapiro and Stelcner (1989).

A property of regression analysis is that the mean of the dependent variable equals the regression coefficients times the mean values of the explanatory variables. That is,

$$(3) \quad W_g = X_g \beta_g$$

$$(4) \quad W_n = X_n \beta_n$$

The hypothetical wage that government sector workers would receive if they had their own characteristics (i.e.,  $X_g$ ) but were paid according to the non-government sector pay structure for those characteristics (i.e.,  $\beta_n$ ) can be denoted as

$$(5) \quad W_g = X_g \beta_n$$

The difference between this hypothetical wage and the wage of non-government sector workers is attributable to differences in the endowments of wage determining characteristics between government and non-government sector workers, since both are paid according to the same pay structure, in this case the non-government sector returns. That is,

$$(6) \quad W_g - W_n = X_g \beta_n - X_n \beta_n = (X_g - X_n) \beta_n$$

is due to differences in the wage determining characteristics or  $X$ s, valued at the competitive or non-government return for those characteristics,  $\beta_n$ .

The difference between the actual wage of government sector workers and the hypothetical wage they would earn if they were paid according to the non-government sector pay structure is attributable to differences in their returns for the same wage determining characteristics, in this case the government sector characteristics. That is,

$$(7) \quad W_g - W_g = X_g \beta_g - X_g \beta_n = X_g (\beta_g - \beta_n)$$

is due to differences in returns,  $(\beta_g - \beta_n)$ , for the same characteristics,  $X_g$ .

Adding equations (6) and (7) yields

$$(8) \quad W_g - W_n = (X_g - X_n) \beta_n + X_g (\beta_g - \beta_n)$$

That is, the average wage differential between the government sector and the non-government sector can be decomposed into two components: differences in the average value of the wage determining characteristics,  $(X_g - X_n)$ , evaluated according to the non-government sector returns,  $\beta_n$ ; and differences in the pay structure between the two sectors,  $(\beta_g - \beta_n)$ , evaluated with the government sector endowments,  $X_g$ . It is the latter term  $X_g (\beta_g - \beta_n)$  that is of policy interest, since (if positive) it reflects the pure wage premium or economic rent that government sector workers would be receiving relative to their non-government sector counterparts with the same endowments of human capital and other wage determining characteristics. The first term,  $(X_g - X_n) \beta_n$ , is generally considered a "legitimate" source of the pay gap since it reflects differences in the endowments of wage determining characteristics such as education or occupational distribution.

It is possible, however, that some of these differences in endowments could be manifestations of ways in which governments "overpay" their employees.<sup>19</sup> For example, if governments "excessively"

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<sup>19</sup> For a discussion see Belman and Heywood (1996, p. 146) and Linneman and Wachter (1990).

promoted their employees to high-wage occupations, or hired "overqualified" people in terms of education requirements, the higher embodiment of these high-wage characteristics would also be a manifestation of rents, assuming that the individuals could not get the same pay for these endowments in the non-government sector. In the extreme, if none of these wage determining characteristics mattered for doing the work, then it would be inappropriate to control for them by including them in the earnings regressions; the full gross wage differential between government and non-government sector workers would be an excess payment or rent. This possibility of "overqualification" is particularly likely on the government sector if wage premiums are paid, in which case the government will have a queue of applicants and hence be able to sustain excessive qualification requirements.

While this is a possibility at least for some of these characteristics, it is extremely difficult to determine the extent of any "excess endowments" and hence for attributing some of the endowment differences to rents. There is no reason, for example, to assume that education requirements in the non-government sector are appropriate for the government sector, and that therefore some or all of any higher pay in the government sector due to greater education qualifications should be considered a "rent" rather than compensation for higher education.

A possible exception may be with respect to the higher degree of unionization in the government sector. If it were reasonable to assume that the degree of unionization in the non-government sector is "optimal" and that the higher degree of unionization in the government sector is "excessive", then the portion of the wage gap attributable to the higher degree of unionization in the government sector could be added to the rent component. In essence, this assumes that government workers may receive some of their rents simply because they are more unionized.

Given the contentious nature of this calculation it is likely best to follow the conventional procedure of labelling only the excess wage payments as rents, and to report separately on the effect of unionization emanating from both the differential union wage premiums and the differential degrees of unionization between the government and non-government employees. This would enable the reader to choose whether to include the pay gap due to differences in the degree of unionization as a "rent" or as an endowment difference that simply reflects the appropriateness of the different degrees of unionization between the two sectors. In fact, by reporting the relative contribution of each endowment difference to the overall government-non-government wage gap, the reader can simply "add on" the effect of *any* endowment difference that is also regarded as a rent. This would enable quantifying and incorporating the effect of endowment differences that could be regarded as "overqualification" in government employment. Equation (5) could have been estimated as the hypothetical wage that *non-government* employees would receive if they were paid according to the government pay structure. This would yield an alternative decomposition of equation (8), whereby the differences in the endowments of wage determining characteristics would be evaluated according to the government pay structure, and the differences in the returns would be evaluated using the mean values of non-government employees as weights. The decomposition outlined above is preferable, however, since the non-government wage structure is the "norm" for purposes of comparability; that is, the assumption is that government employees should be paid the same as comparable employees in the non-government sector.

The previously discussed decomposition procedure may suffer from sample-selection bias if employees sort themselves (or are sorted) into either the government or non-government sector on the basis of *unobservable* characteristics that may also affect their wage. Sorting on the basis of *observable* characteristics does not create a bias because they are controlled for by being included as explanatory variables in the regression analysis. Sorting on the basis of *unobservable* characteristics that do not influence wages is also not an issue. However, if unobservable factors affect the choice of sector and they influence wages, then not accounting for them can bias the other coefficients and hence the magnitude of any pure wage differential between government and non-government employees. This could be the case, for example, if government employees differed systematically from non-government employees in terms of such conventionally unobserved factors as risk aversion or motivation.

In the absence of any data or natural experiment whereby individuals were randomly assigned to one sector or the other, the best procedure is to try to get data or proxy variables for these conventionally unobserved factors. Alternatively, panel data that follows the same individuals over time can be useful because it is reasonable to assume that such unobserved factors are fixed or embodied in the individuals, and that the effect of being in one sector or the other can be identified from those who change sectors. This raises the issue, however, of the extent to which employees who change from the government to non-government sector, or vice-versa, may embody unobserved factors that influenced their decision to change sectors and that also influenced wages.

The most common procedure to account for such possible selection bias is the Heckman selection correction procedure involving the following 3 steps: (1) estimate a probit equation on the probability of being in the government sector as opposed to the non-government sector, (2) use this information to construct a selection correction term (inverse of Mill's ratio), for each of the observations in each of the government and non-government sectors (3) include the appropriate selection correction term in each of the government and non-government sector wage equations. The resulting selection-corrected coefficients will yield the expected wage for an individual who randomly enters the government or non-government sector.

Identification of the probit equation on the choice of sector is best achieved by having variables (i.e., exclusion restrictions) that enter the selection equation but that are excluded from the wage equation<sup>21</sup>. In practice, this is extremely difficult because it is hard to find variables that affect the choice of being in the government sector but that do not influence wages. Multiple selection rules also may be involved if selection into the government sector involves *both* the individual choosing

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<sup>20</sup> See Belman and Heywood (1989), Choudhury (1994), Gunderson and Riddell (1995), Gyourko and Tracy (1988), Hartog and Osterbeck (1993), Stelcner (1989), Terrell (1993), Vander-Gaag and Vijverberg (1988).

<sup>21</sup> It is possible to use the same variables in the probit selection equation and the wage equation, in which case identification of the separate wage and selection effects is attained through functional form differences; that is, from the fact that the selection correction term in the wage equation (inverse of Mill's ratio) involves a nonlinear transformation of the predicted values from the selection probit (and hence the variables that entered the probit equation). However, estimates from such a procedure are often very unstable and implausible in magnitude.

to enter the government sector, *and* the government employer selecting that particular individual. Both selection equations would have to be estimated. Identifying the *individual's* selection probit requires variables that would influence the individual's choice of entering the government sector, but that would not influence the employer's choice of that worker or the individual's wage. Identifying the *employer's* selection probit requires finding variables that would influence the employer's decision to hire that worker, but that would not influence the worker's wage nor their decision to enter the government sector. In part for these reasons, the empirical results from such selection models often differ dramatically across studies, they are sensitive to specification, and they are often implausible in magnitude.

In such circumstances it may simply be infeasible to estimate models that attempt to control for selection bias. Conventional data sets simply may not be rich enough to identify the wage effects from selection effects. This is especially the case when selection could be occurring with respect to almost all of the explanatory variables in wage equations, and not just with respect to the choice of government and non-government sectors. As such, the sensible procedure is likely to try to estimate selection correction models, choosing the exclusion restrictions as carefully as possible. If the estimates turn out implausible, then it may be necessary to rely on conventional single-equation regression procedures, recognizing the possibility that they may reflect some selection bias. In any case, it would be imperative to estimate the conventional single-equation models either for their own sake or to contrast with the selection corrected results.

#### *Queues of Applicants and Turnover:*<sup>22</sup>

As a way around many of the problems associated with direct comparisons of the compensation differences between government and non-government employees, indirect comparisons can be made by comparing queues of job applicants and job turnover. The rationale is that individual employees will evaluate the total compensation of a job (wages, fringes and all non-wage aspects of employment) as well as working conditions and "vote with their feet" by applying for or leaving jobs based on such comparisons. It is not necessary for the analyst to try to control for all such factors in making compensation comparisons. That comparison is being done by those most capable of making the trade-offs -- employees who are employed in such jobs or who are engaged in job search.

According to this perspective, a government job would be overpaid relative to a comparable non-government job if the queue of applicants for such government jobs was greater than the queue for comparable non-government jobs. A potential problem with this perspective is that the optimal queue for jobs may differ between government and non-government sectors. Nevertheless, if judiciously handled this sort of indirect information can be a useful proxy for comparison of total compensation between government and non-government sectors. For example, if queues in one sector rise dramatically over time compared to the other sector, then this would be strong evidence that total compensation increases (relative to the job requirements) in that sector were outpacing the other sector. Or if relative queues in one particular occupation in the government sector were considerably higher than relative queues in the non-government sector, again this could be taken as

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<sup>22</sup> For an application in the U.S. see Borjas (1982), Ippolito (1987), Krueger (1988a, 1988b), Mohanty (1994), Moore and Newman (1991), and Utgoff (1983).

evidence of overcompensation in those particular occupations. In essence, relative queues can be very informative even if there is reason to question the viability of using information on absolute queues as proxies for compensation comparisons.

## 5. Summary of What We Know <sup>23</sup>

Given the variety of empirical techniques that exist and the different data sets and time periods over which compensation differences can be estimated, it is not surprising that there is some variation in our empirical knowledge of the compensation gap between government and non-government employees. In spite of that variation, certain generalizations can be made about the Canadian evidence.

- Government employees do appear to be paid more than comparable non-government employees, with the wage gap being around 5 to 10 percent.
- The pay advantage is higher for low-wage employees and lower (and likely even negative) for high-wage employees. It is also higher for females than males. This highlights a dilemma in that policies to reduce the gap would likely fall disproportionately on groups that are already considered as disadvantaged in the labour market. It also raises the issue of whether constraining pay at the higher wage levels (so that the overall gap does not become too large) is giving rise to problems of recruiting and retaining talented high-level personnel so as to minimize a brain-drain to the private sector. Clearly, in seeking to attain certain equity objectives, efficiency may be sacrificed in the government sector.
- The pay advantage is dissipating over time, likely reflecting the stronger constraining forces that are being placed on governments. Most of the declining overall gap comes about because of a large drop in the public-private wage gap for males; for females, the public-private wage gap may be increasing slightly. The pay gap is also volatile, often becoming substantial in certain periods, and then dissipating, followed by subsequent catch-up periods. This highlights the importance of taking a reasonably long-run view and not over-reacting to short-run signals.
- Although more information is needed on this, the government wage advantage seems to be highest in the broader public sectors of education and health and welfare, compared to the more narrowly-defined government sector. Within the government sector it tends to be highest at the local level, then the provincial level, and then the federal level.
- Limited evidence suggests that fringe benefits are higher in the government sector than in the non-government sector so that the total compensation advantage is likely to be larger than the wage advantage. Certainly, it cannot be said that the government pay advantage is a compensating wage premium for lower fringe benefits and poorer working conditions, although it is the case that the

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<sup>23</sup> Based mainly on Canadian evidence from Daniel and Robinson (1980), Gunderson (1978, 1979, 1995a), Gunderson and Riddell (1991, 1995) and Shapiro and Stelcner (1989).

prize of extremely high salaries and stock options is not available in government jobs.

- Most of the empirical studies are based on data for the 1970s and early 1980s, with little evidence on the current situation or on changes that have occurred over a long period of time, based on the same consistent data set.
- Somewhat surprisingly, the union wage impact is smaller in the public sector than the private sector, although given the high degree of unionization in the public sector, it is extremely difficult to disentangle a union wage effect from a public sector wage effect. Even though the union wage premium is smaller in the public than the private sector, a much larger portion of the public sector is unionized to receive that premium. On net, the higher degree of unionization appears to outweigh the smaller wage premium so that unions contribute to the public sector wage advantage.
- Wage settlements under arbitration tend to be slightly higher than when the right-to-strike prevails in the public sector.<sup>24</sup>
- In spite of its importance in the public sector, little systematic empirical evidence exists on the effect of pay equity initiatives. Where settlements have occurred, they have often been substantial, typically around 4,000 dollars or 20 percent, amounting to 4 to 8 percent of payroll. Since the adjustments have been small or non-existent in the private sector, this could contribute to the pay gap, especially for females.

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<sup>24</sup> Canadian studies and reviews include Anderson (1981), Currie and McConnell (1991), Downie (1979), Gunderson, Hebdon and Hyatt (1996), O'Grady (1992), Ponak and Falkenberg (1989) and Saunders (1986).

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