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Funding Mechanisms, Cost Drivers, and the Distribution of Education Funds in Alberta: A Case Study

This article examines the impact that the 1994 funding changes introduced by the Alberta government have had on the Calgary Board of Education (CBE)—the largest urban board in Alberta and one of the largest boards in Canada. Starting from a critical financial analysis perspective we gather, examine, and recalculate key historical financial data pertaining to the CBE, contextualizing these data through the use of supplementary nonfinancial archival materials. Our analysis highlights the impact that funding changes have had on the CBE, but also indirectly tells us something about the impact on other school boards in the province, because the total amount of per-student education funding has remained relatively constant. More generally, the analysis illustrates how funding mechanisms can be and are used to govern from a distance and how seemingly neutral accounting/funding techniques function to distribute resources among different school boards. By drawing attention to these distributional effects, the current study makes visible the power of largely invisible funding mechanisms in the sphere of public education.

Cet article traite de l'impact qu'ont eu les modifications de financement, introduites par le gouvernement de l'Alberta en 1994, sur le Calgary Board of Education (CBE), une des commissions scolaires urbaines les plus importantes de la province et une des commissions scolaires les plus importantes au Canada. S'appuyant sur une perspective d'analyse financière critique, les auteurs recueillent, étudient et recalculent les principales données financières qui ont touché le CBE en les contextualisant par l'apport d'informations d'archives de nature non-financière. L'analyse fait ressortir l'impact des modifications de financement sur le CBE et, puisque les subventions globales par élève ont demeuré relativement constantes, elle fournit indirectement des renseignements quant à l'impact sur les autres conseils scolaires de la province. De façon plus générale, l'analyse démontre la façon dont on se sert de mécanismes de financement pour gouverner à distance et explique le fonctionnement des stratégies de financement, en apparence neutres, dans la distribution de ressources parmi différents conseils scolaires. En mettant ces effets de distribution en relief, cette recherche rend évident le pouvoir des mécanismes de financement en grande partie invisibles dans le domaine de l'éducation publique.

The \$600-million boost for education that came in last week's provincial budget has placated few critics—and some have vowed to continue lobbying for even more money. Organizers of a rally in Edmonton and a Calgary letter-writing campaign say the extra money is not enough to halt what they see as the decline of education standards in Alberta. "People haven't gone back to sleep. *They don't*

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believe the numbers," said Dianne Williamson, organizer of a rally at Lymburn School in Edmonton. (Heyman, 1999, emphasis added)

If schools boards use it appropriately, then three per cent, two per cent and two per cent just on the basic instructional grant rate is a great deal of money.... The overwhelming majority of public response has been, "Wow, this is a significant amount of money." (Education Minister Gary Mar commenting on the Alberta Government's recent education reinvestment announcement, Heyman, 1999)

The March 1999 announcement that the Alberta government was reinvesting almost \$600 million in public education over the next three years seemed like a reversal of previous policy under the Tory government led by Premier Ralph Klein. For parents and others the initial reinvestment announcement was greeted with relief. It seemed to be an admission on the part of the Alberta government that it had cut too far, too fast, and too much from public education in its zeal to tame the deficit tiger.

The initial reaction of relief, however, soon turned to concern in some quarters. Headlines in the *Calgary Herald* noted that the Calgary Board of Education (CBE) might be forced to eliminate as many as 400 teachers despite budget increases. Similarly, the *Edmonton Journal* noted that the funding increases would make little difference at the individual school level where teacher layoffs were still likely. In the days that followed, opposition politicians and education activists challenged the government's reinvestment rhetoric. In response, Education Minister Mar argued that funding was more than adequate and that school boards such as the Calgary board should spend less time whining and more time streamlining its operations.

Lost in the debate over the amount of education funding being provided by the Alberta government is the impact that changes to funding mechanisms have had on the *distribution* of education funding in the province. Changes in the funding formula were announced by Alberta Education in its 1994 business plan. This plan centralized the funding of education, essentially taking away the power of boards to levy taxes at the municipal level to pay for education. In 1995 the province began to collect and disseminate funds to schools based primarily on enrollments. Along with the centralization of funding, the plan introduced a 12.4% decrease in education funding, the amalgamation of school boards, introduction of mandatory school councils, and legislation permitting charter schools, site-based management, and increased reporting and standardized testing. Centralization was, therefore, part of a broader package of reforms.

This article examines the impact that the 1994 funding changes have had on the CBE—the largest urban board in Alberta and one of the largest boards in Canada. This impact relates to the changing rules governing how education dollars are distributed provincially and the changing relations between and within boards that result. Starting from a critical financial analysis perspective (Shaoul, 1997), we gather, examine, and recalculate key historical financial data pertaining to the CBE, contextualizing these data through the use of supplementary nonfinancial archival materials. More specifically, the study: (a) situates the 1994 and subsequent funding changes in relation to historical education funding trends in Alberta; (b) calculates the impact of these changes

on the CBE; and (c) examines the notion of education cost drivers that underlies the new funding mechanisms. Our analyses document the distributional and other consequences associated with the new funding mechanism.

Although our analysis is site-specific, it should be of interest not only to Alberta educators and policy-makers, but also to those facing similar changes in other Canadian jurisdictions and beyond. One of four trends in school governance identified by the Canadian School Boards Association in 1994 was centralization of power at the provincial or territorial level. Other trends included "a reduction in the number of school boards, redefinition of school board duties and power ... and redirection of some responsibilities to school-based parent or community groups" (Shaker, 1998, p. 27). In a bold move, New Brunswick eliminated school boards, and the province now sets policy and standards with advice from two provincial advisory boards. Ontario's Bill 160 centralized education funding in 1998, while reducing the number of school boards, mandating school councils, and cutting funding. Beyond Canada, Whitty, Power, and Halpin (1998) discuss educational reforms in England and Wales, New Zealand, Australia, Sweden, and the United States. Common trends across jurisdictions include the centralization of power in central governments, devolution of financial and managerial control to more local levels, promotion of parental choice and diversity of provision, and increased use of public funds for private education. Authors identify as a key theme the shift toward a strong state that "steers at a distance" and the development of quasi-markets in education (pp. 35-36). Reforms in Alberta are, therefore, consistent with changes in other sites.

An analysis of the Calgary Board helps us to understand the implications of centralizing or devolution trends by examining a particular case. With an enrollment of almost 100,000 students and a budget of over \$500 million, the CBE is the largest school board in Alberta, educating 17% of Alberta's children. Our analysis highlights the impact that funding changes have had on the CBE, but also indirectly tells us something about the impact on other school boards in the province because the total amount of per-student education funding has remained relatively constant. More generally, analysis illustrates how funding mechanisms can and are used to govern from a distance (Foucault, 1991; Miller & Rose, 1990) and how seemingly neutral accounting or funding techniques function to distribute resources among different school boards. By drawing attention to these distributional effects, the current study makes visible the power of largely invisible funding mechanisms in the sphere of public education.

Following this introduction, we briefly elaborate on the theoretical framing that guides the study. We then provide an overview of the funding changes before turning to our analyses of the financial numbers themselves.

Theoretical Framing

In the academic accounting literature, there is a tradition of research called critical financial analysis (Amernic, 1992; Briloff, 1990; Hoogvelt & Tinker, 1978; Shaoul, 1997). This research involves the unpacking of numerical presentations, viewing accounting numbers as having certain characteristics, and suggesting not only the necessity of reading the provided numbers in certain

ways, but also the importance of recalculating and reconstructing these numerical presentations.

The starting premise for critical financial analysis is the belief that accounting numbers are distributional and ideological. At the simplest level the accounting numbers that appear in financial statements are distributional, because these numbers are a "mechanism for arbitrating, evaluating and adjudicating social choices" (Tinker 1985, p. 81). Investors use the numbers contained in financial statements to decide whether to invest in Company A or Company B; government bureaucrats use the financial statement numbers to assess how well various school boards are using their provided resources. But although accounting numbers have after-the-fact distributional consequences, these consequences are predetermined by prior decisions on what and how to measure. As Tinker notes, measure does not mean an unbiased, impartial summation of events because measurement is predicated on a "value rationale" that influences the events to be measured and the values to be placed on these events (p. 87).

Earlier studies have examined the distributional consequences of measurement decisions. For example, Cooper and Sherer (1984) illustrate how accounting privileges shareholders at the expense of workers by treating labor as cost; Waring (1989) documents how distinctions between paid and unpaid labor in macro-GNP calculations reinforces gender hierarchies; and Tinker (1980) shows how accounting numbers benefit first-world investors at the expense of indigenous workers in the third world. These studies illuminate how such measurement decisions influence what numbers are measured and accumulated in financial statements and thereby encourage certain distributional outcomes.

Although this work illustrates the distributional aspects of accounting numbers, it also suggests that the distributive power of accounting numbers lies in both the apparent objectivity of the provided numbers and in the invisibility of the underlying distribution mechanisms (Neu & Taylor, 1996). To the outsider, accounting numbers appear objective and impermeable (Cohen, 1982). Indeed, the fact that the numbers contained in financial statements are built up from a virtual infinity of atomistic journal entries (Thornton, 1984) contributes to this perception. Similarly, the original value premises that guide decisions on what to measure are usually invisible, making it difficult for outsiders to peer behind the numbers. This characteristic has proven quite useful for bureaucrats because it often forestalls divisive public debates over the distribution of public resources such as health care (Preston, Chua, & Neu, 1997).

In addition to its distributional effects, accounting is ideological in that accounting numbers and calculations constitute a "matrix of meaning" or system of linguistic relations in which individuals make sense of, describe, and reproduce the material conditions of their existence (Eagleton, 1991; Tinker & Neimark, 1987). Accounting terms such as profit or loss, deficit, or surplus have entered the public lexicon and have come to signify desirable or undesirable states of affairs even though the numbers themselves are arbitrary social constructs (Amernic, 1992). These terms "echo, enlist and harmonize with" other dominant discourses to construct a particular view of the world (Lehman & Tinker 1987, p. 507). For example, in Alberta during the early 1990s, govern-

ment debt and deficit numbers were crucial in helping politicians construct government overspending as the problem and spending reductions as the solution (Cooper & Neu, 1995). Thus although accounting concepts and numbers appear commonsensical and transparent, they often erase, homogenize, naturalize, and universalize social practices on which they are predicated (Tinker, 1988).

These characteristics have encouraged critical financial analysis researchers to "read" accounting numbers in two different, but complementary, ways. On one level the "presented" numbers tell us something about the social relations that gave rise to the numbers (Tinker, 1980). Looking at what is measured and what value is placed on certain activities provides hints as to the underlying value positions and social relations. However, on another level this perspective emphasizes the importance of not accepting the provided numbers as the only possible presentation of reality (Amernic, 1992). Rather, the emphasis is on reinterpreting and recalculating the numbers to make visible the interpretations that have been minimized and obscured by the provided presentation of events (Shaoul, 1997).

This second method of reading is often data-intensive (Amernic, 1992). Emphasis is placed on gathering the accounting outputs for a particular institution, situating these outputs historically, and supplementing these data with other data that make visible events that the provided account (un)intentionally obscured. These recalculations then form the basis for constructing an alternative account. As Shaoul (1997) and others note, such recalculations often challenge publicly stated rationales for certain policies and make visible the underlying interests that motivated action.

It is important to note that the outputs of critical financial analysis studies appear to be primarily descriptive, but this label itself is misleading. As the preceding theoretical framing implies, accounting numbers are always the consequence of a specific set of calculations that themselves are shaped by value decisions about what and how to measure. Thus description is never simply a statement of what is, but a normative act itself (Tinker, 1991). What these studies attempt to do is not only to make visible the assumptions underlying dominant presentations of events, but also to illustrate the possibility of different interpretations of previously taken-for-granted events.

In the case that follows, critical financial analysis techniques and methods are useful in helping us to understand the impacts of funding changes on the CBE. We first recalculate historical provincial funding trends as a way of situating the most recent funding changes. We then examine funding trends for the CBE and compare these with provincial changes. This comparison provides a starting point for assessing the distributional consequences of the new funding mechanisms. Next we consider how the new funding mechanism defines cost drivers and what is missing from this definition. Finally we examine some of the micro-consequences of these changes on the CBE. Taken together, the analyses not only provide an alternative interpretation of the impacts of the new funding mechanism, but also raise important policy questions about how education funding mechanisms should be designed.

Funding Changes

In January 1994 Education Minister Halvar Jonson introduced sweeping changes that restructured the public education system in the province. On the funding front these changes included: (a) a 12.4% reduction in education funding over a four-year period; (b) a 5% wage rollback for public sector workers, including teachers; (c) centralizing revenue collection and removing the ability of individual school boards to raise funds through taxation; (d) a more "equitable" block funding framework, which determined how much funding each school board would receive; and (e) a cap on administrative expenditures in the support block at 4% of the funds available for instruction (Peters, 1999). The

Table 1
Provincial Funding Numbers

<i>Year Ended</i>	<i>Enrollment</i>	<i>Adjusted Funding</i>	<i>Current \$</i>	<i>CPI</i>	<i>Constant \$</i>
1981	422,370	\$1,094,360,670	\$2,591	67.2	\$3,856
1982	425,011	\$1,340,484,694	\$3,154	75.5	\$4,177
1983	428,865	\$1,629,258,135	\$3,799	83.7	\$4,539
1984	433,616	\$1,750,941,408	\$4,038	88.5	\$4,563
1985	432,640	\$1,991,598,000	\$4,603	92.4	\$4,982
1986	435,312	\$2,108,644,000	\$4,844	96.0	\$5,046
1987	423,372	\$2,213,797,000	\$5,229	100.0	\$5,229
1988	455,990	\$2,223,208,000	\$4,876	104.4	\$4,670
1989	464,585	\$2,407,521,000	\$5,182	108.6	\$4,772
1990	474,373	\$2,536,077,000	\$5,346	114.0	\$4,690
1991	486,612	\$2,661,381,000	\$5,469	119.5	\$4,577
1992	464,421	\$2,810,258,000	\$6,051	126.2	\$4,795
1993	475,013	\$2,878,000,000	\$6,059	128.1	\$4,730
1994	481,296	\$2,971,000,000	\$6,173	130.4	\$4,734
1995	479,074	\$2,748,000,000	\$5,736	130.6	\$4,392
1996	487,164	\$2,707,000,000	\$5,557	133.5	\$4,162
1997	489,352	\$2,723,000,000	\$5,565	135.6	\$4,104
1998	499,139	\$2,963,697,000	\$5,938	137.8	\$4,310
1999	509,122	\$3,044,218,000	\$5,979	139.0	\$4,302
2000	519,304 e	\$3,261,274,000	\$6,280	140.4	\$4,473
2001	529,690 e	\$3,462,533,000	\$6,537	141.8	\$4,610
2002	537,636 e	\$3,622,000,000	\$6,737	143.2	\$4,704

Notes

1. 1981-1992 funding numbers taken from Statistics Canada (#81-220 & #81-229).
2. 1993-1996 funding numbers taken from 1997 Alberta Education Business Plan.
3. 1998-2002 funding numbers taken from 1999 budget documents.
4. e = estimated spending.
5. Enrollment numbers taken from Statistics Canada, the 1997 Private School Funding Task Force and Alberta education estimates. These numbers exclude ECS enrollments, as do funding numbers for 1998 onward.
6. Funding numbers include funding to opted-out boards but exclude ECS funding for the years ended 1998 onward.
7. CPI index is the Alberta CPI numbers as published by Statistics Canada.
8. The provided numbers are consistent with Statistics Canada data provided in the Education Quarterly Review, for example, for 1997-1998 this document estimates per-student spending in current dollars to be \$6,042 compared with \$5,979 in the above table.

additional constraints placed on boards' abilities to transfer funds between blocks are attributed to bureaucrats' and politicians' desire that boards not pass along budget cuts to the classroom (Bruce & Schwartz, 1997).

The funding framework developed by the province was first introduced during the 1995-1996 school year. As government documents note, it consists of three blocks.

Instruction block provides for the cost of principals, teachers, instructional support staff, learning resources, and so forth. Funds are allocated on a per-student basis with differential rates for special-needs students and ESL students. "Geographically challenged" boards are also compensated through the provision of distance and sparsity grants.

Support block funds support services such as board governance and administration, operations and maintenance of facilities, and student transportation. Again, the distribution of these funds is based on preestablished formulas.

Capital block. This block funds current payments for school buildings and so forth and for capital loan repayments on previously built facilities. Our analysis focuses on the change in the largest block, the instruction block.

Historical Overview

Although this study is primarily concerned with the impacts on the CBE of the recent funding changes, a critical financial analysis perspective encourages us both to situate these changes historically and to present these changes in a manner that permits meaningful comparison. The information contained in Table 1 and Figure 1 re-present government data to adjust for changes in the number of students and the effects of inflation. Our starting point was enrollment and cost data contained in Decore and Pannu (1991), *Alberta Education: Yearly Business Plans and the Report of the Alberta Private School Funding Task Force*, along with *Statistics Canada: Advance Statistics of Education and Education in Canada*. Preliminary calculations pertaining to these historical trends were reported in Neu (1999). Comparisons with other time-series data (Decore & Pannu, 1991) and with Alberta Education documents were used to ensure the computational accuracy of the numbers.

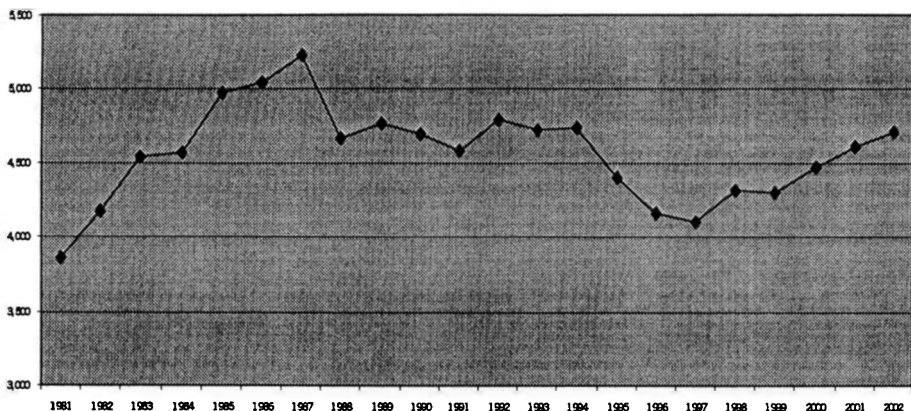


Figure 1: Alberta's per-student funding in 1986 constant dollars.

After these adjustments, the data highlight the partiality of government claims that funding has increased over time—in per-student constant dollars it has actually declined! The data suggest that funding levels for public education on a per-student basis, in constant dollars, have been declining since 1986. The March 1999 reinvestment announcement proposes partly to reverse this trend by restoring average per-student funding to near 1994 levels by 2002. As the data contained in Table 1 and Figure 1 imply, per-student funding peaked in 1987 at just over \$5,000 (in constant 1986 dollars), declined to just over \$4,300 for the school year ended August 1999 (in constant 1986 dollars), and is projected to rise to \$4,700 for the school year ended August 2002. However, even these “average” numbers are misleading in that they do not indicate how the distribution of these funds among boards has changed.

The Impact on the CBE

The centralization of education funding, the removal of the ability of school boards to raise funds through taxation, and the changes in the funding mechanism altered the way that education funds were allocated in Alberta. Suddenly boards were totally dependent on the province for funding and were no longer able to raise funds through local property taxes. This was a significant change for boards such as the CBE, which before 1995 had raised approximately 40% of its revenues through the local tax base (CBE Review, 1998). Decore and Pannu (1991) suggest that Alberta Education had increased its regulation of local education spending over the past few decades. For example, it had set a cap of 7% on the amount that local boards could raise taxes in a given year. However, the degree of provincial control increased markedly with the 1994 business plan.

To assess the impact of these changes on the CBE, we examined CBE budget documents for the 1990-1999 period. Budget data allowed us to calculate the per-student constant dollar funding available to the Board. Table 2 provides a snapshot of the enrollment and cost data for the CBE, and Table 3 compares

Table 2
A Snapshot of the Calgary Board

<i>School Year Ended</i>	<i>Enrollment</i>	<i>CBE Budget in Constant \$ (1000s)</i>	<i>Instruction Spending in Constant \$ (1000s)</i>	<i>Instruction Spending per Student in Constant \$</i>
1990	89,299	\$425,000	\$308,975	\$3,460
1991	91,872	\$435,455	\$319,333	\$3,476
1992	94,274	\$442,026	\$324,793	\$3,445
1993	95,242	\$460,188	\$342,807	\$3,599
1994	95,092	\$459,768	\$341,962	\$3,596
1995	92,500	\$427,985	\$310,452	\$3,356
1996	95,782	\$402,608	\$293,312	\$3,062
1997	95,499	\$399,090	\$294,828	\$3,087
1998	95,790	\$391,389	\$299,147	\$3,123
1999	96,012	\$415,666	\$321,105	\$3,344

Source: CBE budget documents (1994-1998).

Table 3
Historical Funding Levels

<i>School Year</i>	<i>Provincial Per-Student Constant Dollar Spending (Excluding ECS)</i>	<i>Calgary Board Per-Student Constant Dollar Spending (Excluding ECS)</i>
1993-1994	\$4,734	\$4,479
1994-1995	\$4,392	\$4,302
1997-1998	\$4,310	\$3,773
1998-1999	\$4,302	\$4,037
Percentage Decrease 1995-1999	-2.0582	-6.175

Source: Statistics Canada data, Alberta Education data, CBE budget documents.

changes in provincial per-student constant dollar funding levels with those of the CBE.

If we compare per-student constant dollar spending by the CBE with per-student constant dollar spending by the province, we observe that the percentage decrease in per-student spending over the last five years is higher for the CBE than for the Province. For example, if we assume that the appropriate baseline is the 1995-1996 school year (since the centralized funding came into effect in September 1995), the differential impact on the CBE is 4.12%. Although this percentage may not seem very large, on a budget of \$506 million (the CBE's budget for the school year ended August 1999, excluding ECS funding), this redistribution of funds costs the CBE approximately \$20.8 million per year. (The differential impact reported in Table 2 is sensitive to the baseline comparison year chosen. For example, using the 1993-1994 year as the baseline would result in an impact on the CBE of about \$4 million.) The percentage decrease in funds in the CBE has been larger than for the province as whole. As this comparison highlights, changes in funding mechanisms have resulted in a redistribution of funds away from the CBE.

The recent report by Arthur Anderson Consultants that is included in the province's review of the CBE (Province of Alberta, 1998) reached a similar conclusion. Writers noted that:

The Calgary Board of Education has approximately 19% of all students in Alberta.... The Calgary Board of Education accounts for approximately 17% of all expenditures made by the 64 school districts in the province of Alberta. (Appendix A, p. 6)

Although the enrollment and funding percentages quoted by Anderson are "ballpark" figures, the data contained in Table 4 illustrate how much more money the Calgary Board would receive if the funding mechanism used to distribute funds was simply based on the percentage of students educated.

Data from Table 4 indicate that the Calgary board would receive an extra \$42.6 million in funding from the province if the funding per student was equal.

The numbers contained in Tables 3 and 4 make visible the distributional consequences of the new funding mechanism. They show that although the

Table 4
CBE's Share of Total Provincial Funding

	<i>Province</i>	<i>CBE</i>	<i>CBE Percentage of Total</i>
Enrollment	509,122	91,688	18%
Funding	\$3,044,218,000	\$506,205,000	16.6%
Difference			1.4%

Source: CBE 1998-1999 preliminary budget, Alberta Education documents (numbers exclude ECS enrollment and funding).

average provincial per-student constant dollar level of funding has decreased, the magnitude of this decrease for the CBE has been three times the provincial average. These alternative calculations and presentations provide hints as to why school boards, educators, and parents in Calgary were dissatisfied, despite the reinvestment announcements of Minister Mar. The extra \$15 million (about 2.9% of the CBE's budget) that the Calgary Board expected to receive in the 1999-2000 year does not cover the percentage declines experienced by the Board in the previous five years.

Cost Drivers

The provincial response to complaints about the funding mechanisms is invariably met with the response that *equitable* does not necessarily mean *equal*. Implicit in this statement is the assumption that economies of scale and scope differ among boards; thus it is necessary to have a funding mechanism that both identifies and remunerates school boards for these differences in the underlying cost structures. However, when a cost-driver approach to funding is used, it is important to identify the relevant cost drivers (Cooper, 1987; Hilton, 1997) and to assign appropriate levels of funding to these drivers, especially if the total amount of funding available for education is exogenously determined (Covaleski & Dirsmith, 1986). In such situations the cost drivers and the funding levels attached to the cost drivers function as implicit allocation and distribution mechanisms. As the US experience with cost drivers in the area of health care has noted, misspecification mistakes or funding-level mistakes result in unintended consequences such as the inappropriate allocation of funding, the rationing of procedures or substitution among procedures (Hwang & Kirby, 1994).

In the instructional block the funding mechanism introduced by the province in 1994 identifies the "basic" student as the primary cost driver and student characteristics and board characteristics as secondary drivers. Thus all boards receive a base grant per student along with supplementary grants for severely disabled students and ESL students, plus distance and sparsity grants for large and sparsely populated school boards.

On the surface these cost drivers seem appropriate in that we would expect school board cost structures to vary with these factors. However, a review of CBE budget documents along with secondary material raises questions about the levels of funding attached to certain cost drivers and omitted cost drivers.

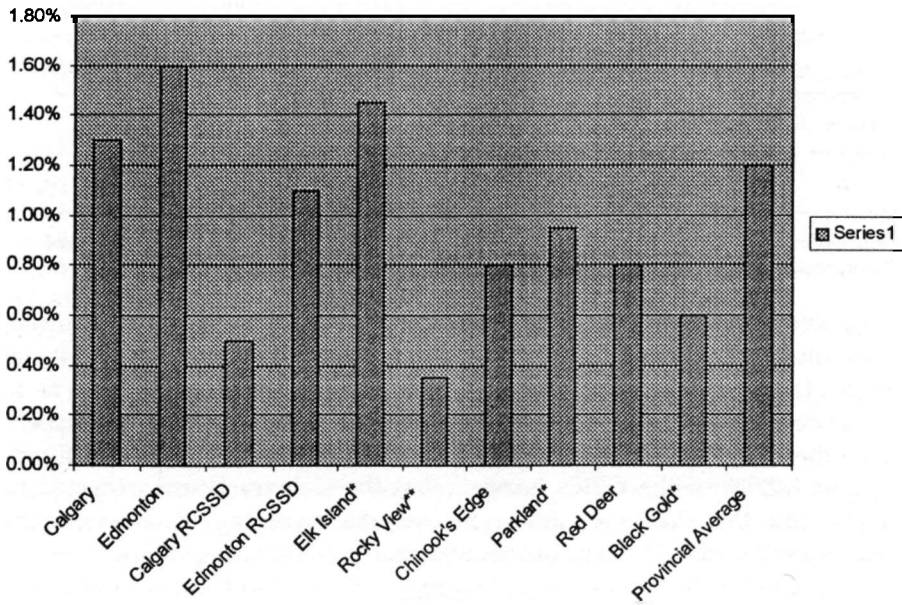


Figure 2: Incidence of severely disabled students (10 largest boards).

Levels of Funding

One of the difficulties with a cost-driver approach is identifying the “true” costs associated with the various activities (Preston et al., 1997). For example, different allocations of nondirect costs (i.e., administrative costs, consultant costs, aide costs) can result in different total costs for items such as basic instruction, ESL, or education for severely disabled students. Thus it is often difficult to assess whether the funding level attached to a certain cost driver is adequate or not.

This being said, the recent provincial review of the CBE by a committee selected by the provincial government (Province of Alberta, 1998) and involving several accountants calls into question the adequacy of the funding level associated with education for severely disabled students. The committee’s report states that the government grant of \$12,596 per severely disabled student is inadequate to cover the true education costs, which probably exceed \$15,000 per student. The authors conclude: “In our view there is presently, on average, an internal cross subsidy for each student with severe disabilities” (p. 37, original emphasis).

An inadequate level of funding for the severely disabled cost driver is only a problem if the percentage of severely disabled students varies across school boards. Without such variation there will be no distributional impact because total education funding is determined exogenously. However, as Figure 2 illustrates, the CBE has a higher-than-average percentage of severely disabled students.

If one accepts the estimate provided by the provincial review committee that the cost of educating a severely disabled student is greater than \$15,000,

whereas the amount of funding received by boards for severely-disabled education is \$12,596, the difference between these two numbers is at least \$2,500 per student (Province of Alberta, 1998). Thus \$2,500 times the enrollment in the CBE times the difference between the CBE's percentage incidence rate and the provincial percentage incidence rate represents the negative distributional impact of this particular cost driver on the CBE. Our calculations suggest that the impact is at least \$240,000 per year [$\$2,500 \times 95,500 \text{ students} \times (.013-.012)$].

Omitted Cost Drivers

Again, if the total level of education funding is exogenous, the omission of a cost driver that varies across boards will have distributional effects. In the case of the CBE, the largest omitted variable is probably that of salary costs. The CBE report concludes that: (a) the board has negotiated a salary grid that is comparable to other urban school boards and indeed is lower than levels in three other major boards in the province; (b) Calgary and Edmonton boards have teachers with higher levels of experience and qualifications than average, which results in higher total compensation costs; and (c) salary levels are largely outside the control of urban school boards because they are a function of the economics of the local marketplace. A submission by the Alberta School Boards Association (ASBA) to the Funding Framework Review Committee (January 1999) confirms that there was a large difference in average salary costs (17%) across boards, based on data from settlements reached by January during the 1998-1999 bargaining year. Part of this difference is because urban centers with postsecondary institutions have more teachers (with higher levels of credentials) who are at the higher end of the salary grid.

If one accepts the conclusion of the provincial review committee, the omission of a salary cost driver results in the redistribution away from the CBE to school boards with lower-than-average teaching costs. The CBE review calculates the distributional impact of this omitted cost driver at \$14.6 million per year for the CBE.¹

Interestingly, although the chosen set of cost drivers seem insensitive to urban school board issues, they do incorporate sparsity and distance, which are rural board concerns.² Although it is not possible to say whether the funding levels attached to distance and sparsity are adequate, provincial funding mechanisms have at least attempted to recognize and compensate for geographic disparities through distance and sparsity grants whereas the issue of teacher salary costs has simply been omitted. Our calculations suggest that this asymmetrical treatment has resulted in urban boards like the CBE being disadvantaged by current funding mechanisms. Indeed the CBE would be better off if provincial funding mechanisms treated all boards equally and simply used students as a basic cost driver, dividing total funds by the number of students and allocating moneys on that basis. As Table 4 indicates, the CBE would receive an extra \$42.6 million if this "simple" cost driver was used.

The above analysis illustrates how micro-decisions regarding cost drivers can result in distributional consequences, especially if the funding levels attached to certain cost drivers are understated or overstated or if relevant cost drivers are omitted. These problems are particularly acute when provincial governments first decide on an aggregate level of education funding and then

use the cost drivers to allocate this funding among boards. In this scenario the selected cost drivers are the primary allocation mechanism to decide on the distribution of resources. Because the total level of funding is exogenously determined, decisions on which cost drivers to use become political decisions (Covaleski & Dirsmith, 1986). However, even when the decisions on individual cost drivers and total funding levels are made jointly, it is difficult to eliminate the political maneuvering around cost drivers given the difficulties in determining the true costs of certain activities and given that total funding is almost always constrained.

The Consequences of Changed Funding Mechanisms

According to the Minister of Education's Message in the 1995-1996 *Annual Report* (Alberta Education, 1996), one of the rationales for restructuring was to "provide more dollars for the classroom" (p. 5). This is also one of the five principles guiding funding changes in the Ontario context.³ However, our analysis of CBE budget documents suggests a different interpretation.

To examine the impact on instruction in the CBE, we first isolated the budget category pertaining to instruction and then restated these amounts as per-student amounts (to adjust for enrollment changes) and constant dollar amounts (to adjust for the impact of inflation). As the data in Table 2 suggest, per-student instructional amounts have declined slightly between 1990 and 1999. Furthermore, at the time of Minister Mar's statement (Alberta Education, 1996), the per-student constant dollar funding for instruction in the CBE had fallen by over 10% since 1990. Thus although on "average" Minister Mar's statement may have been correct, it was misleading in terms of the CBE.

A more micro-examination of budgetary data pertaining to inside-the-classroom activities is consistent with the data contained in Table 2. For example, our calculations indicate that decreased funding was associated with an increase in the pupil teacher-ratio. Between 1994 and 1999 the student-teacher ratio increased from 13.7 to 14.9, an increase of almost 8%.

Perhaps more important, declining funding levels reduced the ability of the CBE to use classroom aides as a way of assisting disadvantaged students. For example, the CBE historically had spent more on ESL instruction than it received in funding; that is, in 1993 it received \$2.6 million in funding and spent \$4.6 million (CBE, 1990-1998). However, funding declines forced the CBE to cut services to this group of students. In 1993-1994 the CBE converted several teaching positions to aide positions and cut staff in an attempt to align expenditures with revenues. As budget documents noted, the reason for this change was to "bring ESL expenditures closer to Provincial funding." The result was

a greater reduction in language development services to ESL students and the support and assistance to classroom teachers that our ESL teachers provide. Further reductions in services to this high-risk population may have a negative impact in terms of drop-outs. (CBE, 1994-1998, 1993-1994 Budget, 8 1AB)

Then in 1994-1995 the CBE restructured ESL education, rolling this subunit into a larger group called Instructional Resource Personnel and cutting \$12 million and 222 FTEs from the budget. The decline in overall education funds at this time was further exacerbated by a change by the provincial government to the funding criteria: the government announced that it would fund ESL

Table 5
ESL Statistics

<i>School Year Ended</i>	<i>Provincial Funding Received by CBE</i>	<i>Students Funded (Meeting Provincial Government's Definition)</i>	<i>ESL Students not Funded by Province (according to CBE)</i>
1993	\$2.6 million		
1994	\$2.1 million	2,326	720
1995	\$1.5 million		
1996	\$1.6 million	2,439	3,929
1997	\$1.6 million	2,482	2,864
1998	\$1.6 million	2,499	
1999	\$3.0 million	4,692	

Notes

1. Information taken from the CBE budgets, 1992-1999.
2. No information was available for the remaining cells since the CBE merged the ESL subunit into the Instructional Resource Personnel category in the 1994-1995 school year.
3. The \$3 million funding number in 1999 reflects the provincial government's decision to provide funding for Canadian-born ESL students.

instruction only for non-Canadian-born students up to a maximum of three years. The result is that many students requiring language instruction are not funded. As Table 5 illustrates, the net impact of these changes has been to decrease the amount of resources that the CBE is able to direct to ESL instruction.

Although we do not document the impact on other students with specialized needs, budget documents suggest similar consequences. For example, the 1993-1994 budget proposed to

reduce staffing ratios for Special education classes. Increase the PTR by an additional .6 in L.D. and PREP classes i.e., from an average of 12.2 to 1 to an average of 12.8 to 1. This would be a total reduction of 18 full-time equivalent Special Education positions ... The reduction is driven by economic considerations rather than pedagogical considerations at this time. (CBE, 1994-1998, 1993-1994 Budget, 8 1S)

The above discussion highlights how changed funding levels and funding mechanisms encouraged a change in CBE practices. Under the previous funding regime, the ability of the CBE to levy taxes provided it with the autonomy to devote funds to locally defined priority areas. However, the new funding levels and mechanisms both eliminated any budgetary slack in the system and made it difficult to shift funds between areas. As a consequence, the new funding mechanism reduced the ability of school boards such as the CBE to determine locally what is an appropriate education, centralizing such definitional activities at the level of the province. In these ways, the new funding mechanism operated as a governmentality mechanism (Foucault, 1991; Miller & Rose, 1990). The mechanism allowed government bureaucrats to exercise control at a distance over key educational activities such as the definition of a basic education, the amount spent on instruction, and the amount spent on ESL and education for severely disabled students. Although this centralization may

have been desirable from the perspective of Alberta Education, our analysis proposes that the new funding mechanism resulted in the CBE rationing certain educational activities such as ESL education.

Discussion

This study used a critical financial analysis approach to examine the impact of changed educational funding mechanisms on the CBE. Starting from CBE budget documents, Alberta Education data, and Statistics Canada data, we have recalculated and reinterpreted the accounting numbers in an attempt to understand how funding changes have influenced schooling in Calgary public schools. Our analyses suggest that the new funding mechanism: (a) decreased the percentage share of total provincial education funding received by the CBE; (b) decreased the amount of funding available for instructional activities; and (c) resulted in the rationing of certain services such as ESL. Furthermore, given that the percentage of funds received by the CBE has declined by more than the provincial average, we can conclude that the new funding mechanism has on average benefited some school boards in the province.

The numerical analyses provide an alternative framing to government statements regarding funding changes. For example, the per-student constant dollar funding numbers contained in Table 1 suggest that although aggregate funding in nominal dollars may have increased, the “real” impact of the changes has probably been negative. Similarly, the per-student constant dollar numbers reported in Table 5 suggest that the net effect of these changes has been a decrease, not an increase, in the amount of funding devoted to instructional activities.

A critical financial analysis approach prompts us also to think about what these funding changes and the numbers themselves imply about both the rationales for the changes and the social relations of schooling in Alberta. Government documents imply that a key rationale for changes was to address the inequities faced by certain rural school boards vis-à-vis their urban counterparts in terms of taxation capacity. It is probably not insignificant that rural Alberta has also been a Tory power base for over two decades (Wilson, 1995). Wilson notes that although three quarters of the population is urban, half of the legislative seats are rural. However, our analysis indicates that attempts to remedy historical inequities faced by rural boards may have come to some extent at the expense of urban boards such as the CBE. As the ASBA (1999) suggests, the current funding system has created other inequities across boards by overlooking key factors such as differences in student populations and staff placement on the salary grid. Of course, changes in the funding mechanism have been exacerbated by other changes, most notably the reduction in overall education funding and the encouragement of competition among and within boards and with private schools as a result of increases in their funding.

Our analyses also allow us to speculate about how changes to funding mechanisms have altered relations in the CBE. It is clear that the combination of decreased overall funding and increased regulations regarding how boards can spend money has forced boards to choose between the educational needs of different groups of students—choices that were less necessary before the introduction of a centralized funding system. In this way, new funding mechanisms

allow the provincial government to govern from a distance (Miller & Rose, 1990; Whitty et al., 1998), effectively imposing its definition of an appropriate education on disparate and heterogeneous school boards. Clearly, when provincial funding aimed at meeting the needs of disadvantaged children (special needs, English-as-a-second language, children in poverty) is inadequate, those boards with higher than average numbers of these students suffer disproportionately. When this is accompanied by increased regulation, such boards have little room to maneuver outside of eliminating the services that they have developed over time to meet the needs of their diverse populations. Thus our analyses highlight how the new funding mechanisms had the effect of increasing the province's control over both the definition and provision of education in geographically dispersed and heterogeneous sites. This clearly constrained the ability of school-based managers and parents to make significant decisions in local sites.

Our analysis has focused on the instructional block, but similar changes in social relations can be observed in the other funding blocks. For example, the older age of school facilities in Calgary and Edmonton vis-à-vis other school boards has resulted in the CBE being unable to maintain its facilities with the money provided (Province of Alberta, 1998). A report commissioned by the CBE (1997) compared facilities expenditures in the CBE with US benchmarking standards. The report concluded that "Insufficient levels of funding are currently dedicated to the renewal or replacement of aging facility components as they age and wear out" (p. 43).

As with the instructional block, changes to the support block have also affected social relations in school boards. Both Calgary and Edmonton boards have increased their contracting-out of custodial services in a mistaken attempt to save money (Edmonton Board of Education, 1997). In the Calgary board, the level of custodial services declined by 28% between 1990 and 1997 (when the number of new schools opened are taken into account, CBE, 1994-1998).

Although this study has focused on the case of the CBE, the analysis raises issues of importance for *all* educational policy-makers. For example, the study illustrates that funding mechanisms have distributional consequences and that these consequences are often invisible. But perhaps more important, the study demonstrates that funding mechanisms should be viewed as a type of control mechanism that can be used to encourage certain actions at a distance. Depending on how specific the funding envelopes are and how much flexibility is granted to school boards to reallocate funds among activities, policy-makers can decide how much autonomy will be provided to school boards in defining and implementing a community-specific vision of education. More generally, the study makes visible the malleability of accounting numbers and how seemingly simple decisions about how and what to measure can have significant distributional consequences.

At a micro level, our analyses highlight the importance of cost drivers in such funding mechanisms. Decisions about which cost drivers to use and the level of funding attached to individual cost drivers affect not only the distribution of funds among school boards, but also the amount of resources devoted to specific educational activities. The cost drivers themselves signal provincial priorities to school boards. Assigning low levels of funding to a particular cost

driver signals the low priority attached to that activity by policy-makers and thereby encourages individual boards to shift resources away from that activity. Similarly, the omission of a cost driver like teacher salary costs from the funding mechanism encourages school boards with above-average teaching costs to reexamine these costs, perhaps pressuring their staff for salary reductions. Thus decisions about cost drivers simultaneously signal government priorities or values and distribute resources among school boards.

Although this study helps us to understand the role and functioning of funding mechanisms and cost drivers in public education, three areas of research deserve further attention. First, although our analysis of the CBE provides some indirect evidence of the impact that the funding changes have had on other school boards in the province, additional work is clearly needed to assess more precisely the impact of changed funding mechanisms. Because the average amount of per-student constant dollar funding in the year 2002 is projected as approximately the same as in 1994, and because the per-student amount of funding received by the CBE will have declined over this period, we can assume that redistribution has benefited other jurisdictions. But given the differing school tax bases prior to the centralization of funding, the amalgamation of school boards, and differing student demographics, it is necessary to examine the impact on boards on a case-by-case basis. Future research in this area will help pinpoint the challenges facing different boards and the social impact of changes both across and within school boards.

Second, the starting point for the current study has been both aggregate and board-specific financial numbers. Although we believe that these numbers can tell us something about the social relations of schooling and how funding changes have effected educational practices, in-depth qualitative research into how individual boards, administrators, and teachers have responded to these changes would yield additional valuable information. Such in-depth research would help us to understand how educational participants adjust, compensate, and accommodate to the changes encouraged by changed funding mechanisms.

Third, comparative work that considers changes in Alberta vis-à-vis those in other provinces and countries would provide a more comprehensive understanding of educational reform trends that allow governments to steer from a distance while developing quasi-markets in education. In particular we feel that the focus on the implications for equitable provision of education is crucial. Although this case suggests that attempts to reduce certain inequities (rural-urban) produced others (reduced service for disadvantaged students), clearly more research needs to be undertaken in order to understand the complex implications of changes across different sites.

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Notes

1. The provincial review does not calculate the impact of higher compensation costs on urban boards other than the Calgary Board. However, our calculations suggest that it is approximately \$8.5 million per year (4,119 full-time equivalents x \$2,071 salary above the

- provincial average) for the Edmonton Board and around \$1.5 million per year for the Red Deer Board (based on discussions with school board officials).
2. The topic of different student needs has also been raised in the context of educational reforms in Ontario where Leithwood (1999) notes that "large city school systems, as compared with our suburban and rural systems, attract a much larger proportion of students with special or more diverse needs-needs for second language instruction, needs arising from a bundle of conditions, captured in the term 'inner cityness.'"
 3. The Ontario Ministry of Education and Training suggests that the new centralized funding system will shift resources to the classroom through its per-pupil foundation grant (Web site: www.edu.gov.on.ca/eng/document/brochure/excelfue.htr).

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