Critical Response to "A Short History of K-12 Public School Spending in British Columbia"

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Abstract
In Issue 196 of the Canadian Journal of Educational Administration and Policy (CJEAP), the journal published an article by Jason Ellis, *A Short History of K-12 Public School Spending in British Columbia, 1970-2020* that claimed "K-12 public education spending in British Columbia – adjusted for inflation – is 250 percent higher in 2020 than it was in 1970" (Ellis, 2021, p. 102). We illustrate how this claim lacks a theoretical framework, is based on weak data sources, a flawed research method and skewed analysis that results in a misleading understanding of resource allocations in BC. We present alternative ways to understand spending on education in BC in an effort to correct the scholarly and public record.

Introduction
When we recently received the table of contents for Issue 196 of the Canadian Journal of Educational Administration and Policy (CJEAP) we were excited to see an article looking at the history of K-12 funding in British Columbia (Ellis, 2021). The history of education funding is an under researched topic in British Columbia, so we were pleased to see someone digging into public school spending.

As promised in the abstract, we were looking forward to seeing an analysis of public-school spending over the past half century, in particular the "causes and correlates of spending change" (p. 102). A strong statistical analysis developing a causal understanding of spending change and relevant correlations would be valuable in understanding the complexity of the BC education system, and in particular its financing.

Unfortunately, what was described in the abstract was not presented in the text of the article. Rather than a strong statistical analysis of funding allocations in BC over the past 50 years, the author chose a particularly meaningless application of the consumer price index (a measure of consumer spending having little relevance for spending in education systems). Further, no statistical analyses were conducted to examine spending correlations or to test the significance, validity, and reliability of the study findings. As detailed below, methodological short comings, unsubstantiated claims, imprecise language, and incomplete analyses result in an article that at best offers an incorrect understanding of education spending in B.C., and at worst is misleading.

Article Summary
Despite the initial language suggesting a statistical analysis of public-school spending, the author instead calculated inflation adjusted spending on an annual basis from 1970 – 2020. The author also gathered annual enrolment data in an effort to look at spending changes as a response to enrolment change. This is not easy data to gather, and Ellis has worked hard across a number of data sources to build the annual spending and enrolment profiles. The author then attempted to embed this data set in the historical political and labour-relations context. This part of the paper is perhaps the most valuable as the author explored the relationship between a series of different left and right leaning governments and the British Columbia Teachers' Federation as the Federation moved from a professional association to an estab-

lished labour union. Ultimately, Ellis concluded that claims of neoliberal austerity and funding shortfalls are inaccurate given his calculation of a 250 percent increase in funding over the 50-year period.

Critical Analysis

While the exploration of system growth, labour relations, and government spending priorities is an interesting and important topic for historians to study, the current study fails on four fronts. First, the data sources compiled by Ellis are weak, combining spending data that, for example, alternatingly includes and excludes capital spending (p. 104). Second, the article lacks a theoretical framework that could be used to justify the data collection and analysis, or otherwise help us understand and interpret the findings. Third, the analytic method used to understand spending growth is wholly inappropriate to the education sector and economists, and researchers have developed more relevant analytic tools for this purpose. Finally, the article includes unsubstantiated claims around neoliberalism and is generally couched in language of austerity and fiscal conservatism that calls into question the author's ability to interpret the data transparently.

Weak Data Sources

While one might expect there to be easily accessible information about government spending across ministries and over time, this data in truth is quite difficult to find. This is in part because not all historical data has made it into electronic format and because there are different repositories of the data. Despite these challenges, Ellis found three data sources from which to pull data—one covering 1970-74, another running 1975-2001, and a final one running from 2002 to the present which incorporates an additional shift from calendar to school years. Each of these data sets were compiled in slightly differing ways. As Ellis noted, in some cases, the data included capital spending or pension contributions, in others, not (p. 104). To address these differences, he noted that he "tried to pick the most representative source and figure in each year," (p. 104) although he never explained how this choice was made. Additionally, Ellis noted, without explanation, that he changed data sets in 2001, even though the data set from Statistics Canada that he was using continued beyond 2001. The decision to change data sources may have been quite reasonable, but it should be methodologically justified, just as his methods for picking "the most representative source" should have been explained. Without these details, researchers cannot replicate and verify his work. All of this variation in the data sets makes it challenging to standardize the data for analysis. As he noted, "The mixture of three different sources of spending data, each of which counts slightly differently, means that readers should not necessarily compare the periods 1970-4, 1975-2001, and 2002-present directly" (p. 104). That said, in claiming a 250% increase in spending from 1970-2020, this is exactly what Ellis did.

Inappropriate Data Analysis

Even if the data Ellis had gathered was comparable[1], there are remaining flaws in the analysis. Consumer Price Index (CPI) as a method for standardizing and comparing spending data across time (e.g., calculating prior year spending in 2020 dollars) is generally of little value in education finance, largely due to what is known as productivity lag and Baumol's Cost Disease (Baumol, 1996; Heilbrun, 2011). Originally theorized in 1966 (Baumol & Bowen, 1966), Baumol and Bowen realized that costs in industries that are resistant to productivity increases (like arts, healthcare, and education) will outpace those in the general economy (Baumol, 1996). This happens because wages and other expenses must continue to increase (since they are located within the general economy and must compete with other sectors for workers and resources) while productivity may not (since "education" or "learning" is not easily defined or quantified). While a full discussion of productivity lag and Baumol's cost disease is beyond the scope of this rejoinder, it is quite likely that the "astounding" (p. 102) increases identified by Ellis are simply a textbook example of this phenomena. As another example, Baumol (1996) calculated a similar increase in the United States, as the cost of K-12 education "increased 348 percent in terms of dollars of constant purchasing power in the postwar period [1949-1995]" (pp. 186-87) as a result of productivity lag and the cost disease.

[1] For example, Ellis could have searched the Legislative Library for BC and local government repositories for primary source material regarding adopted budgets and appropriations.

Neoliberalism and Austerity

This brings us to Ellis cursory engagement with neoliberalism, which is reductionist insofar as it centres on the singular issue of costs. He was unable to detect any relationship between neoliberal attempts to reduce spending and political parties of the left (NDP) or right (Social Credit and Liberal), as both have generally adopted neoliberal economic policies. Ellis' rejection of critiques of government that incorporate references to neoliberalism, which he made in a short paragraph on page 103 and again in the conclusion, is insufficiently theorized to generate such broad claims as being "symptomatic of a bigger problem in the education policy literature: attributing rising or falling spending too simply and singly to political ideology [neoliberalism]" (p. 196). His critique of the literature is quite narrowly focused on Neoliberalism as a driver of austerity and fails to consider the broader scope of Neoliberalism and its critiques (Laitsch, 2013; Poole, 2015; Poole & Fallon, 2020; Sen, 2016). In fact, as suggested by Baumol's cost disease, funding in education can be expected to continue increasing, even within a context of austerity. This is an interesting area to explore in future research and would be a valuable contribution to the scholarship on the intersection of education financing and politics. There is certainly a debate to be had regarding neoliberalism in education, but it requires more evidence than Ellis scarcely presented in this paper. As the identified objectives of his paper are not intended to directly address or answer questions about the connection between politics/policy and financing, it seems that this section is largely superfluous and a distraction to the stated purposes of the paper.

Imprecise Language

Language is important in research as specialized words carry with them important meaning. When a researcher promises causal empirical research, the use of those words demands very specific methodological and analytic approaches which were not used in this study. Additionally, the use of the word "correlation" implies statistical calculations to identify relationships between variables, an analytic approach that was also not used in this study. The haphazard use of these words creates the misleading impression that this research generates such deterministic outcomes. It does not (and given the approach, it cannot).

Throughout the article Ellis also used the language of fiscal conservativism to examine spending and contextual change. He interpreted policy work through phrases like: "rein in educational spending" (p. 102); "cost control" (pp. 102, 110, 111, 117, 118); "controlling spending" (pp. 102, 113, 114); "impose spending limits" (p. 118); and "fiscal discipline" (p. 113), while also somewhat sarcastically suggesting that areas of spending increase were driven by efforts of teachers to "work less" (p. 109). Such a view of teacher work and class size ignores the wealth of research on the learning effects of small classes and the interest of teachers in maximizing student learning experiences (CCL, 2005; Glass & Smith, 1979; Haughey et al., 2001; Laitsch et al., 2021). Alternatively, teacher recourse to collective bargaining, job action, court challenges and political activism can be seen as efforts to exercise professional responsibility to ensure work environments reflect current knowledge of pedagogy and learning theory given the context of rapid and ongoing changes in the social and policy context of the public school system. The alternative would be to cede the authority that stems from expertise acquired through years of study, practice, and scholarship. The tension between these views of teacher work has a long history that is beyond the scope of this paper but is important to acknowledge when efforts to negotiate class size are contextualized as work avoidance. Such framing by Ellis calls into question the 'trustworthiness" of the analysis of the historical record that the researcher is providing, something critical in qualitative and historical research (Gill et al., 2018).

Alternative Approaches

These critiques of the approach Ellis takes aside, the questions he asks are important, and there are methodologically stronger approaches that can be used to undertake this analysis and discussion. Although Ellis didn't formulate traditional research questions in this study, he promised to examine two questions in the abstract:

- Has K-12 public education spending increased or decreased between 1970-2020; and,
- What are the causes and correlates of spending changes?

Public Education Spending

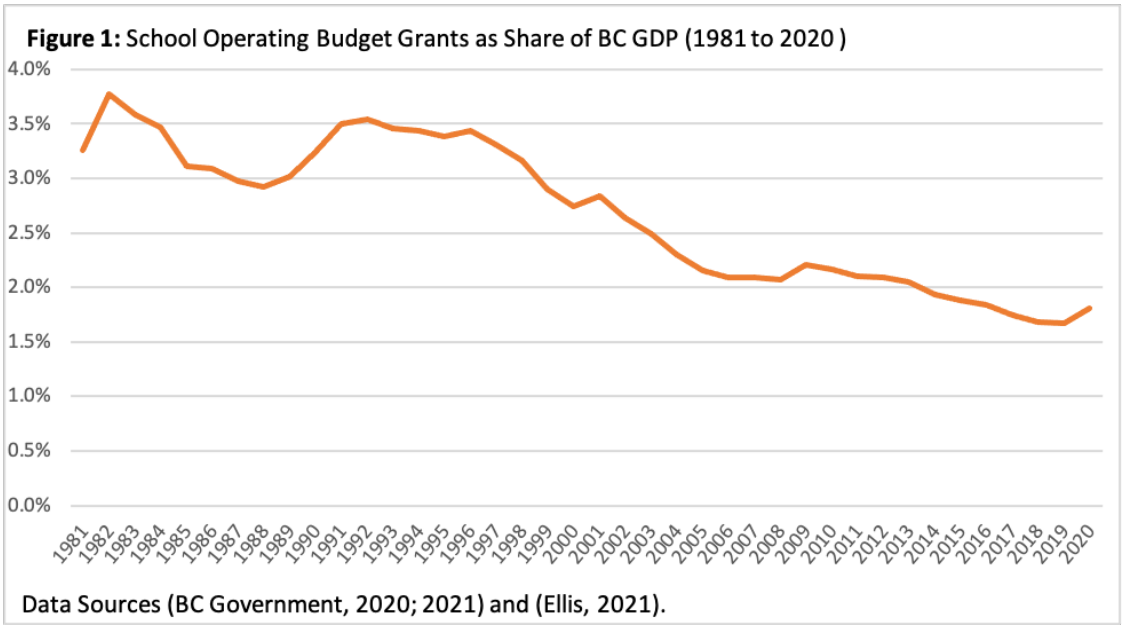
In attempting to answer the first question, Ellis used CPI. There are a number of better inflation indices that could have been used to look at spending change over time. For example, the Higher Education Price Index (Commonfund Institute, 2020), has been developed for the post-secondary sector in the United States and might be applicable to lower levels of education as well. Certainly, a similar index could be created for Canada and/or BC, and in fact, StatsCan produced an Education Price Index that ran from 1971 through 2004 that could have been used or replicated to generate more accurate deflationary data (Statistics Canada, 2005, 2010).

Another approach to understanding the change in spending over time would have been to look at teacher salaries annually and examine how they compared with the changing salaries of similarly educated and credentialed professionals. This has been done in the United States through what is known as the Comparative Wage Index (Cornman et al., 2019). A similar approach would be to look at teacher salaries comparatively to understand how such spending relates to comparator provinces. While a time series analysis is beyond the scope of this response, looking at 2018, BC starting teacher salaries ranked 12th out of 13 provinces and territories, or 9th out of 10 when restricted to just provinces; and 8th out of 13 for maximum salaries, or 5th out of 10 when restricted to provinces (BCTF, 2019). The comparison suggests that any focus on runaway teacher salaries is unfounded.

A final mechanism that entities like the World Bank, the Organization for Economic Cooperation and Development (OECD), Statistics Canada and the Council of Ministers of Education, Canada use to understand spending change in education is to look at education spending as a percent of economic productivity—that is Gross Domestic Product (GDP) (CMEC, 2020). A merit of this approach is that it is much more informative about the extent to which current (or increased) levels of education spending would be economically sustainable. While this too is a fairly blunt tool, it tells a different story of spending in BC, with education accounting for approximately 3.2% of GDP in 1981 and just 1.8% of GDP in 2020 (see Figure 1 and Appendix A). This calculated *decrease* in resourcing tells a much different story than Ellis' purported 250% increase in funding.

Figure 1

School Operating Budget Grants as Share of BC GDP (1981 to 2020)



Causes Of Spending Change

Although Ellis promised to address the "causes and correlates of spending changes" (p. 102), he never directly addressed the question. While he looked at two factors within finance (inflation adjusted spending and enrolment) he failed to identify any theoretical framework that could be used to justify this approach or to guide his research and interpret his findings. Even the use of a basic econometric framework would have flagged the problems with his analysis identified earlier (productivity lag and Baumol's cost disease).

In looking through the paper to tease out the "causes and correlates of spending changes" noted in the abstract (p. 102), it appears that Ellis would credit a reduction in class sizes and the concomitant hiring of more teachers, and unspecified "provincial and district spending priorities" (p. 102). The last 50 years in education policy in BC have been quite active as districts and the Province, among other priorities, sought to integrate into the public system students who had or would have attended residential schools, improve outcomes for indigenous students, improve education for students with diverse needs, increase pay equity for Education Assistants, reduce class sizes as a way of improving student achievement, implement new technologies, and improve French language services. Exploration of how these (and other) changes in the education system correlated to changes in funding would have been an important addition to the research base and could be accomplished statistically through a times-series modeling incorporating such variables. As it stands, Ellis' "causes and correlates of spending changes" are simply conjecture.

Researchers interested in such intersections of funding and educational outcomes have also developed methodologies to look at the adequacy of school spending. Adequacy studies have been a core part of education finance scholarship in the United States throughout the 2000s (Odden et al., 2008) and work has been done to adapt similar methods to the Canadian context (Faubert et al., 2019). Examination of the adequacy of spending in BC to achieve Ministry identified outcomes would also be an important addition to the research base.

Approaches like these might have been included had Ellis followed through on his stated plan, expressed at the outset, as they would more directly address his goal of understanding the correlates of spending change in BC over the past half century. A historical analysis in this case is not an appropriate methodology to use in attempting to answer the causal empirical questions he raised in the abstract.

Conclusion

The purpose of authoring this response to Ellis' article is to try to correct the record on education spending change in British Columbia. The claim of a 250% increase in funding in the BC system is spurious, as is the suggestion that such spending changes are due to the BCTF members' efforts to "work less." Additionally, we sought to show that there are a number of stronger and more established theoretical frameworks, approaches, and methods for addressing the empirical questions Ellis raised.

We do agree that Ellis raised important questions—we just wish they had been more carefully theorized and answered. The theoretical and methodological short comings, unsubstantiated claims, imprecise language, and incomplete analyses found in this paper create a flawed understanding of education spending that is deeply misleading to readers.

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Appendix

Education Spending as a Share of GDP, 1981-2020

Year	GDP at market prices	Ellis operating grants time series	Ratio
1981	46,596,000,000	$1,519,146,000	3.3%
1982	46,600,000,000	$1,756,640,000	3.8%
1983	49,329,000,000	$1,765,267,000	3.6%
1984	51,788,000,000	$1,795,930,000	3.5%
1985	55,788,000,000	$1,734,169,000	3.1%
1986	58,954,000,000	$1,820,931,000	3.1%
1987	65,147,000,000	$1,934,075,000	3.0%
1988	72,095,000,000	$2,105,460,000	2.9%
1989	78,443,000,000	$2,361,673,000	3.0%
1990	82,374,000,000	$2,664,455,000	3.2%
1991	84,975,000,000	$2,970,197,000	3.5%
1992	90,515,000,000	$3,207,015,000	3.5%
1993	97,221,000,000	$3,360,589,000	3.5%
1994	103,598,000,000	$3,561,518,000	3.4%
1995	109,203,000,000	$3,695,262,000	3.4%
1996	112,540,000,000	$3,867,087,000	3.4%
1997	118,585,000,000	$3,922,189,000	3.3%
1998	119,775,000,000	$3,791,511,000	3.2%
1999	125,658,000,000	$3,643,509,000	2.9%
2000	136,411,000,000	$3,743,067,000	2.7%
2001	138,815,000,000	$3,934,550,000	2.8%
2002	143,993,000,000	$3,793,878,997	2.6%
2003	151,958,000,000	$3,790,399,854	2.5%
2004	164,600,000,000	$3,790,284,553	2.3%
2005	177,197,000,000	$3,825,334,945	2.2%
2006	190,479,000,000	$3,975,520,925	2.1%
2007	200,440,000,000	$4,181,076,295	2.1%
2008	206,427,000,000	$4,283,333,343	2.1%
2009	198,179,000,000	$4,364,634,939	2.2%
2010	206,990,000,000	$4,485,985,485	2.2%
2011	218,771,000,000	$4,602,510,973	2.1%
2012	223,328,000,000	$4,659,443,289	2.1%
2013	230,981,000,000	$4,725,363,400	2.0%
2014	243,872,000,000	$4,725,363,400	1.9%
2015	250,784,000,000	$4,725,636,400	1.9%
2016	263,912,000,000	$4,846,204,605	1.8%
2017	282,283,000,000	$4,932,046,042	1.7%
2018	296,135,000,000	$4,983,602,032	1.7%
2019	309,059,000,000	$5,163,489,425	1.7%
2020	295,300,000,000	$5,326,126,003	1.8%