# The Public Funding of Private Education: A Quantitative Study of 'Who Gets What, When and How' in Four Canadian Provinces

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Abstract: The provincial funding of private education has long been a salient and resilient issue in several Canadian provinces. Most prior studies on the topic display a normative argumentation in which the legitimacy of such funding is questioned. Yet surprisingly little is known about the empirical features of the funding allocation mechanism. This paper fills the research gap by describing and explaining the variation in the amount of public money that is directed towards private school authorities in Alberta, British Columbia, Manitoba, and Quebec.

I use previous researches conducted in sociology of organizations, political economy, and political science, so as to present formal hypotheses. I expect the amount of public funding received by a private school authority to be a function of its organizational features, its financial needs, and its electoral environment.

I assembled a dataset in order to empirically assess the theoretical model built from the literature review. I use data on 495 private school authorities and their environment across Alberta, British Columbia, Manitoba, and Quebec. I present robust estimation of multiple regression models as well as quantile regression analysis results.

I find that the variation in the amount of public funded allocated to private school authorities is best explained by their financial "needs". This suggests that provincial governments seemingly behave with equity concerns in mind when dealing with the funding of private education.

Two additional results are noteworthy. First, I find that Catholic and Protestant private school authorities tend to be somewhat favoured compared to the rest of private school authorities, although this is only true of authorities located below the median level of provincial funding. Secondly, I find that the electoral competitiveness of private school authorities' political environment has a circumscribed though significant positive impact on the less publicly funded among them. This suggests the existence of distributional benefits stemming from electoral competition.

Résumé : L'allocation, par les gouvernements provinciaux, de subventions publiques à certaines écoles privées constitue dans plusieurs provinces canadiennes un enjeu régulièrement débattu. Si divers travaux antérieurs discutent, dans une perspective normative, de la légitimité des systèmes de soutien financier public à l'éducation privée, on sait finalement peu de choses de leur fonctionnement pratique. Le présent article remédie à cette situation en décrivant et en expliquant la variation dans le montant de subventions publiques provinciales allouées aux autorités scolaires privées en Alberta, en Colombie-Britannique, au Manitoba et au Québec.

Nous utilisons des travaux théoriques et empiriques de sociologie des organisations, d'économie politique et de science politique pour en dériver des hypothèses testables et réfutables. Celles-ci relient le montant de subventions publiques reçues par les autorités scolaires privées à leurs caractéristiques organisationnelles, à leurs besoins financiers et à leur environnement électoral.

Afin de tester empiriquement le modèle formulé, nous avons construit une base de données qui porte sur 495 autorités scolaires privées réparties dans les provinces de l'Alberta, de la Colombie-Britannique, du Manitoba et du Québec. En recourant à l'analyse de régression multiple avec estimation robuste ainsi qu'à l'analyse de régression quantile, nous déterminons que les besoins financiers des autorités scolaires privées constituent la meilleure explication des caractéristiques de la distribution de

subventions publiques provinciales à l'éducation privée. Ceci suggère que les gouvernements provinciaux adoptent une perspective d'équité lors de la distribution de financement public aux prestataires d'éducation privée.

Deux résultats supplémentaires peuvent être ici soulignés. D'une part, nous trouvons que les autorités scolaires catholiques et protestantes sont relativement avantagées par rapport aux autres autorités scolaires privées au niveau du financement public, quoique cet avantage ne concerne que les autorités situées sous la valeur médiane de la variable dépendante. D'autre part, nous trouvons que la compétitivité électorale de l'environnement politique des autorités scolaires privées a un impact positif et significatif pour celles d'entre elles qui reçoivent le moins de subventions provinciales. Ce résultat suggère l'existence de bénéfices distributifs provenant de la compétition électorale.

**Introduction**


On December 7 2004, Pierre Reid, Quebec Education Minister, announced at the freshly rebuilt Talmud Torah school library in Montreal (that had been devastated by an arson earlier that year) that five Montreal Jewish private schools were to be publicly funded at the same level as public schools. Had the decision been applied, these schools would have benefited from the same "privilege" as had had a few private Hellenic schools that were granted full public funding by Lévesque's provincial government in 1978 (Anctil 2006: 149-150; Gagnon 2007: A31). However, a newspaper article made the government to go back on the decision. Indeed, *La Presse* newspaper on January 18 2005 related explicitly this funding decision to a fundraising event that targeted Montreal Jewish community and that was held by Québec's Liberal Party (Pierre Reid's party) (Lessard 2005:A1). In short, *La Presse* claimed that this decision was part of an electoral bargain. Shortly afterwards, Jean Charest, Quebec's Prime minister denied the innuendo and reversed the decision of his Education minister (Anctil 2006: 151-152).

This story has two interesting features. First, unlike traditional debates about the public funding of private education, it deals with the differential allocation of public money amongst schools and not with the pros and cons of publicly funding private education. Second, the story suggests that the actual public funding of private education may have a political dimension that had not been previously acknowledged. In short, the story interestingly raised the issue of the determinants of the public amount of money granted to private education. At first sight the scholarly literature seems promising but a closer look at it reveals two important gaps.

Most of the literature dealing with the public funding of private education in Canada and abroad is normative. Briefly stated, these works generally translate in the realm of political theory the pros and cons of such funding. While some scholars defend a neutralist position implying for provincial governments not to fund private education at all (Callan 1997; Macedo 1998; Paquette 2005; Spinner-Halev 2000; Sweet 1997), others argue in favor of the opposite position (Barrow 1993; Magsino 1986: Shapiro 1986; White 2003). Though interesting and fundamental, these works do not account for the variation within the distribution of public money to private education.

I acknowledge that a few empirical studies touch on the public funding of private education. However they usually do it by using such funding as an independent variable (quantitative studies) or an explanatory factor (qualitative studies). In doing so, they do not aim at explaining the variation within the public funding but at examining its effect on various outcomes. These range from demand and supply for private education (James 1991, 1993), to student achievement in mathematics (Toma 1996), perceptions of long-term principals and teachers (Van Brummelen 1993), and teaching methods and basic curriculum (Barman 1991). Clearly the specific literature on private education does not show clear guidance on the study of the determinants of public funding.

My study also adresses another gap in the literature. Among the large amount of studies that focus on the nonprofit sector in Canada (e.g. Banting and Brock 2001; Brown and Troutt 2003; Hall, Barr, Easwaramoorthy, Sokolowski, and Salamon 2005; Juillet, Andrew, Aubry and Mrenica 2001; Phillips 2003) few if any have paid attention to primary and secondary private education, even though private education organizations

are known along with health institutions to be amongst the biggest and oldest organizations in the nonprofit sector (Douglas 1987; James and Rose-Ackerman 1986)[1]. This paper fills these research gaps by focusing on the variation within the amount of provincial funding received by private school authorities in British Columbia, Alberta, Manitoba, and Quebec. The research questions can be stated as follows: what best explains the variation in the amount of provincial public funding allocated to private school authorities? I answer by assessing the empirical plausibility of three explanations labelled: "organizational", "responsive", and "electoral" explanations.

In the remainder of the paper, I provide a short context and then review the literature so as to state formal hypotheses from it. I then move to the data and methods section and discuss the results of robust and quantile multiple regressions. Finally, I conclude on the explanations of the variation in the public funding of private education.


**The public funding of private education in Canada**

In 2006-2007, total provincial expenditures in education were about $7.8 billion in Alberta, $9.8 billion in BC, $2.4 billion in Manitoba and $12.6 billion in Quebec[2]. In the meantime, private primary and secondary schools received about $82 million in Alberta, $211 million in British Columbia, $45 million in Manitoba and $421 million in Quebec from their respective provincial governments. In 2006-2007, primary and secondary education concerned approximately 560,000 students in Alberta, 580,000 in British Columbia, 182,000 in Manitoba and about 946,000 in Quebec. During that same time period, private school enrolment figures were about 26,000 students in Alberta, 68,000 in British Columbia, 14,000 in Manitoba, and 124,000 in Quebec. These numbers tell an interesting story about the mean level of per student grant that do not vary much across provinces. Indeed, all four provinces have a mean per student grant amount that ranges from $3,100 in BC to $3,400 in Quebec, with Alberta and Manitoba in between. The variation in the public funding of private education seems to be concentrated between private schools rather than between provinces. That being said, we should now take a look at how the allocation system functions.

First it is crucial to discuss two important terms used throughout this paper: "private school authorities" and "grants". Strictly speaking, this study deals with private school authorities and not private schools. The nuance stems from the fact that authorities refers to the administrative structures which receive provincial grants. Most of the time though, one school corresponds to one authority. However, since it is not true of each and every private school, the nuance had to be brought up.

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[1] According to the definitions of "charities" and "nonprofit organizations" given by the *Income Tax Act*, 1985 (sections 149.1 and 248.1), Canadian private school authorities are charities and not nonprofit organizations (see Sossin 2001: 377-378). Legally speaking the term "charity" is more restrictive than "nonprofit organization". However, a broader sociological definition considers Canadian private educational organizations as nonprofit organizations (Hall, Barr, Easrawaramoorthy, Sokolowski, and Salamon 2005: 2-3). Since it does not impact of the consistency of my argument, I follow Hall et al. (2005) and consider in this study private school authorities as nonprofit organizations.

[2] See http://www.stat.gouv.qc.ca/donstat/econm_finnc/conjn_econm/TSC/pdf/chap13.pdf, [On line], page viewed on May 8, 2009.

Governments have many ways to impact financially on citizens and organizations. This study only considers the most direct financial instrument that is "grant". "Grants" can be defined as "payments from a donor government to a recipient organization (typically public or nonprofit) or an individual. More specifically, they are a gift that has the aim of either 'stimulating' or 'supporting' some sort of service or activity by the recipient […]" (Beam and Conlan 2002: 341). This definition is particularly important to our purpose because the literature review largely follows from it. Let us now look at the allocation system *per se*.

According to section 93 of the Constitution Act, 1867, education falls under provincial jurisdiction (except for a few specific cases directly managed by the federal government). Out of five Canadian provinces in which some public funding of private education exist, this study consider four of them[3]. These are British Columbia, Alberta, Manitoba, and Quebec[4]. Public funding of private education has existed in Alberta and Quebec since 1967 and 1968 respectively. After two decades of vehement debates (Cunningham 2002), British Columbia provincial government started to partially fund several independent schools in 1977 (Barman 1991). Manitoba followed in 1981 (Manzer 1994: 171; Sweet 1997: 112).

In all four provinces, there exists an allocation formula that links the amount of grant received by a private school to the level of the provincial funding directed to the public school district in which a private school authority is located. This factor is accounted for in the empirical analysis of this paper (more specifically, it can be found under the "responsive explanation" label). That being said, several scholars have rightly pointed out that the existence of an allocation formula by no means precludes exogenous factors from having an impact on the actual distribution of public money through the formula itself (Boex and Martinez-Vasquez 2005: 3; Innes and Stoddard 1988: 3). This is precisely

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[3] Saskatchewan is somewhat of an exception. Partial public funding exists there for eight independent schools (Athol Murray College, Caronport High School, Luther College, Lutheran Collegiate Bible Institute, Queen City Collegiate, Rivier Academy, Rosthern Jr. College, and Western Christian College) (Anderson 2003: 1; Auld and Kitchen 2006: 18; Swift 1993: 17). However, all of them are Christian high schools and therefore they do not vary on two important independent variables (religious status and type of students) used in this research. In such conditions, including these observations would not improve the analysis (King, Keohane, and Verba 1994: 146). There are also alternative independent schools that provide special needs education and receive public funding for it. However, as mentioned later on, special needs schools are not part of our sample of schools. Therefore Saskatchewan publicly funded independent schools are not considered in this study.

[4] Provincial laws and regulations dealing with the funding of private education can be found for British Columbia, Alberta, Manitoba, and Quebec, respectively at:

❖ section 12 to 14 of the *Independent School Act* (ISA), 1992.
  (See http://www.bced.gov.bc.ca/legislation/schoollaw/independent_school_act_contents.pdf, [On line], page viewed on May 4 2009), and various regulations (See http://www.bced.gov.bc.ca/legislation/schoollaw/i/bcreg_262-89.pdf, [On line], page viewed on May 4 2009);

❖ section 28, *School Act*, 1988 (Cf. http://www.qp.gov.ab.ca/Documents/acts/S03.CFM, [On line], page viewed on May 4 2009);

❖ section 60-5 of the Public Schools Act, 1993,
  (See http://web2.gov.mb.ca/laws/statutes/ccsm/p250_2e.php, [On line], page viewed on May 4 2009);

❖ sections 83 to 90 of the *Loi sur l'enseignement privé*, 1992
  (See http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/E_9_1/E9_1.html, [On line], page viewed on May 4 2009).

what I seek to measure by testing several explanation of the public funding of private education. Let us see them in turn.

**Literature review**

The study of the private school authorities – provincial governments relationships can benefit from findings made by the nonprofit sector literature. Beside, since public money allocated by governments is at stake, distributive politics literatures also deserve to be mentioned.

*The public funding of nonprofit organizations*

The literature dealing with nonprofit organizations (hereafter NPOs) – government relationships has significantly increased during the 1990s (Salamon and Anheier 1996; Smith and Lipsky 1993). Various typologies mapping the relationships have been proposed, for example that of Najam (2000) that classifies them according to the similarity of the goals and preferred strategies of governments and NPOs. Not far from it, Young (2000) finds "that government – non profit relations can be conceptualized as either supplementary, complementary, or adversarial" (Young 2000: 150).

These theoretical works are very useful for researchears who aim to categorize and to name the relationships. However their applications are of less help to this study since they usually conceive public funding of NPOs as an independent variable affecting various outcomes (e.g. Hiemstra 2002; Juillet and al. 2001). The focus of this paper being on the determinants of public funding to private education, I rather need to rely on those works which conceive government funding as a dependent variable.

In this line of research, authors generally do not assume that governments have any specific motive in funding NPOs. Indeed they merely consider that governments aim to make sure their potential grantees are trustworthy. This "assumption" loosely refers to a principal – agent relationship in which the government looks for evidence of the private educational operators reliability (James 1991: 373). As a consequence, it is expected that government *de facto* selects his "partners (Ebaugh and al. 2005b, Owens 2006) and that looking at various NPOs characteristics helps predict the amount of public funding received by private school authorities.

In this research, four characteristics of private schools are hypothesized as having an impact on the amount of public money they receive. The first one is the religious status of private school authorities. In the 1980s, several economists interested in the nonprofit sector stressed the pioneer role of religious NPOs in many countries as providers of education and health services (James and Rose-Ackerman 1986). In the 1990s, the literature that aimed at comparing the public funding of religious and secular NPOs had increased significantly in the United States, primarily as a consequence of the implementation of the *Charitable Choice* (1996) and *Faith-Based and Community Iniatives* (2001) policies[5]. The non existence of such an initiative in Canada is probably

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[5] These two policies allow religious social service providers to compete with secular providers for US federal grants (Monsma 1996, Twombly 2002).

the reason why researchers on the nonprofit sector did not consider the religious factor in connection with the funding of NPOs (Hiemstra 2002). I argue however that this perspective is appealing and relevant in the context of Canadian private schools because many of them are explicitly religiously-orientated. In the 19th century, all across Canada, religion and education were intertwined (Manzer 1994: 165). Since the 1960s however, public education has gradually become more and more secular. As a result, religious providers of education have moved toward the private sector along with "elite schools" (Hiemstra and Brink 2006). This movement may have come with pecuniary advantages which would lead us to expect religious private schools to be more publicly funded than secular private schools. It is also highly probable that a difference exist among religious private schools. Researches done in the field of judicial policies toward minority groups in Canada have found instances of executive and judicial favoritism toward majority religions (Catholic and Protestant) over minority religions (Beaman 2003; Côté 1999, 2003). Perhaps such a situation exist in the funding of private education.

The second organizational characteristic that may impact on the funding of private education is the size of private school authorities. NPO literature generally assumes and frequently observes a positive relationship between size and funding (Ebaugh and al. 2005b, Gronbjerg 1993; Smith and Lipsky 1993; Twombly 2002). Consequently, I would expect bigger private school authorities to receive more public grants than smaller one.

The third organizational determinant of public funding is the membership in a coalition that represents private schools interests in the province. Classical view of interest group politics (Becker 1983, Olson 1965) stresses the potential power of interest groups over the government. In this perspective, every monetary transfert is assumed to respond to a bargain in which interest groups trade votes against public funding (Bilek 2004). This too can be observed when the organized interests are NPOs. However, I do not need to assume that private schools associations have a decisive power over the provincial government, it suffices to hypothesize that as far as the government is concerned, membership in such associations equals trustworthiness, which may later be translated into grants[6].

The last organizational explanation is the impact of non governmental revenues on public funding. The literature on the economics of NPOs in their relations to governmental funding is concerned with crowd-in versus crowd-out effects of public money on private revenues (Andreoni 1993; Andreoni and Payne 2003; Brooks 1999, 2000a, 2000b, Payne 1998). Researches considering the opposite hypothesis, that of the impact of non governmental revenues on public grants, are rarer but do exist (e.g. Heutel 2007). Applied to the funding of private education, a crowd-in effect would mean that the amount of public funding could be positively related to the amount of non gouvernemental revenues earned by a private school authority. This line of reasoning has a direct appeal if we expect the government to proportionate the amount of funding to evidence of trustworthiness. Conversely a crowd-out effect would yield the opposite relation between non governmental revenues and provincial funding.

NPOs literature points out organizational characteristics as important explanatory factors of public funding. The definition of "grant" previously proposed suggests that public

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[6] Indeed, in both cases the relationship between membership to the interest group and provincial funding is expected to be positive.

finance and distributive politics literatures may well shade light on the determinants of the public funding of private education.

*The economics and politics of governmental grants*

Broadly speaking, two specialized literatures are important when considering grants. They diverge on the assumption they put on the government intent in granting money.

Public finance and public choice perspectives on grants

Two segments of political economy are interested in the allocation of grants: welfare economics and public choice. Both of them view governments as maximizers of a social welfare function (Alperovich 1984 : 285-286; Johnson 1998: 12; Rosen and al. 2008: 29). Welfare economics cares about equity and efficiency issues, while public choice deals with the translation of the median voter demands into policies (Boex and Martinez-Vasquez 2005; Porto and Sanguinetti 2001). A common assumption made by authors in this line of research is that governments try to respond to social demands and to the grantees needs.

In this study, I assume that as far as the provincial government is concerned, private schools perform a desirable activity (this is a logical consequence of the definition of "grant" previously stated). Therefore equity and efficiency may apply to the allocation of public funding to private education. Allocating money to private education providers would be a mean for the provincial government to correct suboptimality in the supply of private education. From an equity point of view, the public funding of private education can be justified as a mean to correct an unequal distribution of non governmental resources among rich and poor private school authorities. In sum, assuming that provincial governments value the existence of a private educational sector, they act in order to correct suboptimal supply whenever it appears and /or to reduce the financial gap between rich and poor authorities.

The public choice literature also brings new light on the explanation of the public funding of private education. It particularly does so through the median voter theorem. The actual mechanics of this theory set aside, its important feature is that of responsiveness. This simply means that according to the median voter theory, the government is sensitive and responsive to the population preferences and demands (Congleton 2004; Turnbull and Chang 1998). Demands are usually measured by social and/or demographics aspects of constituencies (Lowry and Potoski 2004). It implies for this study that the funding of private education may well depend on the demands for it. Provincial governments may not have any preference regarding the amount of money to be transferred to private school authorities, they may just respond to the demand of the population for private education.

Grants as political and electoral tools

Several authors do not assume that governmental officials use grant as a mean to achieving the greatest level of social welfare. To the contrary, they posit that grants should be viewed as political tools (Innes and Stoddard 1988; John and Ward 2001; Ward

and John 1999) helping vote maximization on the behalf of elected officials (Frey and Lau 1968; Van der Ploeg 1984).

Many researches have tried to relate grants to electoral competitiveness (Falcone and Mishler 1977); committee positions and seniority (Fenno 1973; Holcombe and Zarkoodhi 1981; Shepsle and Weingast 1987); political ideology (Busemeyer 2007; Castles 1982, 1998; Hibbs 1977; Sharpe and Newton 1984) and representativity (Atlas and al. 1995; Porto and Sanguinetti 2001). Several works on Canadian politics have used the electoral explanation (Crampton 2004; Falcone and Mishler 1977; Imbeau and al. 1994; Milligan and Smart 2005).

The electoral environment has two aspects: one is quantitative, the other is qualitative. The competitiveness of an electoral district has long been expected to influence various redistributive policy outcomes. V.O. Key (1949) first related electoral conditions to policy outputs such as grants allocation (Karch and Deufel 2004; Lachapelle 1994). Several studies have found evidence of this effect (Lachapelle 1994, Falcone and Mishler 1977, Crampton 2004). Milligan and Smart (2005) nuance this result by stating that generally the relation does not hold, yet it does for federal electoral districts held by the government party (at that time the *Liberal Party of Canada*). This introduces the second explanation.

The qualitative side of the electoral environment argument echoes the question asked by Milligan and Smart: "if […] grants are a political tool, then what ends do they serve?" (2005: 1). The idea is that the partisan allegiance of the district helps predict the amount of public money that will be received by various organizations located in the district. Two competitive arguments leading to two opposite expectations were identified by Ansolabehere and Snyder (2003): on one side, several researchers claim that the winner (the party that will govern) rewards its loyal supporters by allocating grants to the districts it holds (Cox and McCubbins 1986, Levitt and Snyder 1995). On the other side the argument is that the winner (the party that will govern) seeks to enlarge its support by targeting swing districts or enemy-held districts (Dixit and Londregan 1996; Lindbeck and Weibull 1987; Persson and Tabellini 2000). Each of these explanations has received support in the US, in Canada and in the UK (Crampton 2004; Milligan and Smart 2005; Ward and John 1999). However, since grants are usually beneficial to the government because they strengthen the support of beneficiaries without causing too much protest from their opponents (Howlett and Ramesh 2003: 110), it makes more sense to expect that an increase in the level of electoral competition elicits promise of support (Dawson and Robinson 1963), which in turns lead to the reward of supporters.

Taken altogether, organizational, responsive and electoral explanations form the basis of the empirical investigation. Before we move to it, let me state unambiguously the hypotheses drawn from the literature review.


**Research hypotheses**

The determinants of public funding to private education can be grouped into three clusters. The first hypotheses derive directly from the NPOs literature and altogether they constitute the "organizational explanation." Hypotheses that come from the political

economy literatures are collectively referred to as the "responsive explanation." Finally, hypotheses linked to the electoral literature are labelled the "electoral explanation".

*The organizational explanation*

Public funding of private educational providers can be related to four of their characteristics: their religious status, their size, their membership in the provincial association that represents private education interests, and their non governmental revenues. Formally:

**Hypothesis 1.1**: *Religious private school authorities receive a bigger amount of provincial grant money than do secular operators, all other things being equal.*

**Hypothesis 1.2**: *Catholic and Protestant private school authorities receive a bigger amount of provincial grant money than do minority religion operators, all other things being equal.*

**Hypothesis 1.3**: *The amount of provincial grant money received by a private school authority is positively associated with its size, all other things being equal.*

**Hypothesis 1.4**: *Private school authorities that belong to the provincial private education interests group receive a bigger amount of public money than do non members, all other things being equal.*

**Hypothesis 1.5**: *The amount of provincial grant money received by a private school authority is positively associated with the total amount of its non governmental revenues, all other things being equal.*

*The responsive explanation*

The responsive explanation deals with the needs of the grantees and the demand for private education. This explanation comprises four statements. Formally:

**Hypothesis 2.1**: *The amount of provincial grant money received by a private school authority is negatively associated with the amount of its non governmental revenues, all other things being equal[7].*

**Hypothesis 2.2**: *The amount of provincial grant money received by a private school authority is positively associated with the amount of its financial needs, all other things being equal[8].*

**Hypothesis 2.3**: *Primary private school authorities receive a smaller amount of public money than do primary and secondary level schools, which in turns receive less than secondary level private school authorities, all other things being equal[9].*

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[7] Contrary to hypothesis 1.5, I now expect the relationship between non governmental revenues and public funding to private education to be negative. Indeed, if equity concerns matter for resources allocation (Grossman 1994), I will expect private schools non governmental revenues to crowd-out governmental funding (Heutel 2007).

[8] The normative perspective on efficiency and equity (Porto and Sanguinetti 2001) leads me to expect a positive relationship between private schools needs and the amount in grants they receive.

[9] Conventional wisdom suggests that schools dedicated to secondary-level education receive more public money than do schools dedicated to primary-level education.

**Hypothesis 2.4**: *The amount of provincial grant money received by a private school authority is positively associated with the demand for private education, all other things being equal.*


*The electoral explanation*

If grants are political tools (Innes and Stoddard 1988), it makes sense to expect a positive relationship between electoral competitiveness and grants (Karch and Deufel 2007). Beside, in a Westminster parliamentary system characterized by strong partisan discipline such as that of the Canadian provinces, it makes sense to expect the party forming the government to target electoral districts it holds with grants at the expense of other constituencies (Crampton 2004). Formally:

**Hypothesis 3.1**: *The amount of provincial grant money received by a private school authority is positively associated with the level of electoral competition observed in the provincial electoral district where it is located, all other things being equal.*

**Hypothesis 3.2**: *Private school authorities located in a provincial electoral district held by the party forming the provincial government receive a bigger amount of public money than do private school authorities located in a provincial electoral district held by an opposition party, all other things being equal.*

I also control for provincial effects. Previously stated hypotheses can be modelised as follows:

**Model I**: grant amount per student = *f* (religious status; size; membership in interest group; non governmental revenues; province)

**Model II**: grant amount per student = *f* (non governmental revenues; needs; type of students; demand for private education; province)

**Model III**: grant amount per student = *f* (electoral competition; government held district; province)

**Model IV**: grant amount per student = *f* (religious status; size; membership in interest group; non governmental revenues; needs; type of students; demand for private education; electoral competition; governement held district; province).

Let us now turn to the data and methods section of the paper.

**Data and methods**

*Describing the sample*

The unit of analysis is the private school authority that is the administrative structure managing one or more private school. I started from the entire population of private school authorities in four out of five provinces that partially fund private education: Alberta, British Columbia, Manitoba and Quebec[10]. Altogether this population comprises 986 private schools gathered in 755 private school authorities. Out of these 755 private school authorities, I only kept those that have received provincial grant money in 2006-2007. This yielded 528 private school authorities. I then deleted 33 observations. Eight were deleted because they are Aboriginal school authorities that have received most of their funding from the federal government and only a marginal amount from the provincial governments. 25 special needs private schools authorities were also discarded because they displayed unusually large amount of grant money. I finally kept 495 private school authorities that constitute the entire population of *publicly funded primary and secondary private school authorities that are not Aboriginal authorities nor directed toward special needs students, in four Canadian provinces for the budgetary and school year 2006-2007*. Out of the 495 private school authorities, 81 are located in Alberta, 194 in British Columbia, 51 in Manitoba and 169 in Quebec.

*Instruments*

**The dependent variable**: Several studies in the NPO – government relationship literature measure funding with the dollar amount of grant money (Ebaugh and al. 2005b: 280; Luksetich 2007: 3; Twombly 2002: 952). I add the per capita approach taken from the literature on intergovernmental monetary transfers (Boex and Martinez-Vasquez 2005: 9). Thus, I use the ratio of the total amount of provincial grant money received by a private school authority for 2006-2007 to the number of registered students.

**Independent variables**: The organizational explanation encompasses four variables. The first one is a trichotomous variable representing the religious status of the private school authority. Traditionally, studies about religious NPO have been interested in organizational religiosity that is a quantitative measure regrouping several survey items (Ebaugh and al. 2005a, 2005b, 2006). In my view however, a qualitative measure of the

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[10] Saskatchewan is somewhat of an exception. Partial public funding exists there for eight independent schools (Athol Murray College, Caronport High School, Luther College, Lutheran Collegiate Bible Institute, Queen City Collegiate, Rivier Academy, Rosthern Jr. College, and Western Christian College) (Anderson 2003: 1; Auld and Kitchen 2006: 18; Swift 1993: 17). However, all of them are Christian high schools and therefore they do not vary on two important independent variables (religious status and type of students) used in this research. In such conditions, including these observations would not improve the analysis (King, Keohane, and Verba 1994: 146). There are also alternative independent schools that provide special needs education and receive public funding for it. However special needs schools are not part of our sample of schools. Therefore Saskatchewan publicly funded independent schools are not considered in this study.

religious dimension of private school authorities best captures the idea of favouritism in the Canadian context. Private school authorities were coded regarding religion on the basis of their self-proclaimed religious dimension (as Ebaugh and al. 2005b, Hiemstra 2002: 26; Twombly 2002: 950-951). Private school authorities were then classified either as majority religions private school authorities (MAJ) (that is Catholic or Protestant) or non religious private school authorities (NREL). The baseline category is minority religions private school authorities.

The second organizational variable, SIZE, is the size of a private school authority. In the NPO literature this is sometimes measured by financial resources or by a count number of programmes (Ebaugh et al. 2005b; Gronjberg 1993; Smith et Lipsky 1993; Twombly 2002). Other works measure the size of an organization as the number of "clients" served (Chaves 1999: 838-839; Chaves, Stephens et Galaskiewicz 2004: 303; Owens 2006: 65). The latter measure seems more appropriate for my study because provincial funding regulations stress the principle of funding per student. The measure I use is then the ratio of the number of students to the number of schools managed by a private school authority.

The third organizational variable (INTGP) is the membership in the provincial organized interests association. I use a dummy coded one if the private school authority belongs to the biggest association in the province (FISA in British Columbia, AISCA in Alberta, MFIS in Manitoba and FEEP in Quebec). It is coded 0 otherwise.

The fourth organizable variable (OTHREV) is the per student amount of non governmental revenues. Even though as other NPOs private school authorities get their revenues from a variety of sources (Ebaugh and al. 2005a, Horne 2005), I am only interested in a global measure of non governmental funding. Because the variable has an explanatory purpose, I use a one-year lag (Heutel 2007).


The responsive explanation
The first variable (OTHREV) included in the responsive explanation is the per enrolled student amount of non governmental revenues with one year-lag, defined as previously.

The second variable (NEEDS) is the financial needs of the private school authority. This variable is measured as the total per public school student provincial grant allocation awarded to the school district. The logic behind this is that NEEDS constitutes a suitable proxy to depict financial needs of private school children. Per public school student provincial grants awarded to school districts are computed by provincial Education ministries so as to reflect social and economic conditions of the students.

I then use a conceptually ordinal variable measured with two dummies. This variable is the "type" of students enrolled in the private school authority. Therefore, private school authorities are either primary and secondary level authorities (PRSC), or secondary-level only authorities (SEC). Primary-level only authorities are the baseline category.

The last "responsive" variable is the demand for private education (DEMA). This measure has been routinely used in the economics of education literature (James 1993). It is the percentage of students in a school district that are enrolled in a publicly funded primary or secondary level private school.


The electoral explanation links the electoral conditions to the funding of private education. This is reflected by two variables. The first one is the *index of potential*

*competition* (IPC) elaborated by Mayer (1972) and improved by Milder (1974). Various researches in comparative provincial policies have used this measure (see Bernier 1994: 168, Denoncourt 1994: 88, Lachapelle 1994: 126) instead of using a measure of plurality (e.g. Crampton 2004; Milligan and Smart 2005), or a measure of fractionalization (Falcone and Mishler 1977).

The formula is $IPC = 1 - \sum_{i=1}^{K}(P_i - 1/K)^2$ ,

Where $P_i$ is the electoral market share of the political party i and K is the number of parties in the system. I measure the value of this index for each provincial electoral district in which there is a private school authority.

The second electoral variable (GVT) is a dummy coded 1 whenever the party holding the electoral district is the party forming the government. It is code 0 otherwise.

I also use three dummies that indicate the province (BC, MB, QC). The baseline category is Alberta.

The material presented above is summed up in Table 1 (see next two pages) which is immediately followed by descriptive statistics of the variables used in the empirical section of the paper (see Table 2).

Table 1 – Descriptive table of the variables included in the study, their measures and data sources

| Concepts | Variables | Measures | Original data sources | Hypotheses |
|---|---|---|---|---|
| **Government financial support** | Grant (PCGRANT) | Total per student amount of provincial grant (year 2006-2007) | Provincial Ministries of Finance and Education | N/A (dependent variable) |
| **Status regarding religion** | Majority religion authority (MAJ) | 1 = Catholic or Protestant authority 0 = other | Canada Revenue Agency & private school authorities | 1.1 & 1.2 |
| | Minority religion authority (baseline) (MIN) | 1 = minority religion authority 0 = other | Canada Revenue Agency & private school authorities | 1.1 & 1.2 |
| | Non religious authority (NREL) | 1 = non religious authority 0 = religious authority | Canada Revenue Agency & private school authorities | 1.1 & 1.2 |
| **Size** | Size (Size) | Mean number of students by authority (year 2006-2007) | Provincial Ministries of Education | 1.3 |
| **Private education interests representation** | Membership in the private education organized interests association (INTGP) | 1 = membership in the representative organization 0 = other | FISA, AISCA, MFIS, FEEP & private school authorities | 1.4 |
| **Non private funding** | Non provincial governmental funding (OTHREV) | Per student amount of non governmental revenues (year 2005-2006) | Canada Revenue Agency & private school authorities | 1.5 & 2.1 |
| **Private school authority needs** | Financial needs (NEEDS) | Total per student school district grant (year 2006-2007) | Provincial Ministries of Finance and Education | 2.2 |
| **Types of students** | Primary authority (PRIM) | 1 = only primary level students 0 = other | Provincial Ministries of Education | 2.3 |
| | Mixed authority | 1 = some primary level students, | Provincial Ministries of | 2.3 |

| | | | | |
|---|---|---|---|---|
| | (PRSC) | some secondary level students<br>0 = other | Education | |
| | Secondary authority (SEC) | 1 = only secondary level students<br>0 = other | Provincial Ministries of Education | 2.3 |
| *Private education demand* | Private school enrolment (DEMAND) | Percentage of the school district total school population that goes to a publicly funded private school | Provincial Ministries of Education | 2.4 |
| *Electoral competition* | Competition (IPC) | Index of potential competition $\times 100$ | Elections BC/AB/MB et DGEQ | 3.1 |
| *Party affiliation* | Party holding the provincial electoral district (GVT) | 1 = provincial electoral district held by the government<br>0 = other | Elections BC/AB/MB et DGEQ | 3.2 |
| *Province* | Alberta (AB) | 1 = authority located in Alberta<br>0 = other | Provincial Ministries of Education | N/A (control) |
| | British Columbia (BC) | 1 = authority located in British Columbia<br>0 = other | Provincial Ministries of Education | N/A (control) |
| | Manitoba (MB) | 1 = authority located in Manitoba<br>0 = other | Provincial Ministries of Education | N/A (control) |
| | Quebec (QC) | 1 = authority located in Québec<br>0 = other | Provincial Ministries of Education | N/A (control) |

Table 1 *Continued*

Table 2 – Descriptive statistics of the variables used in the study

| Quantitative Variables | Mean | Median | Standard Error | Range |
|---|---|---|---|---|
| SUBVPC ($) | 3339 | 3491 | 912 | 482 – 6851 |
| SIZE (# of students) | 338 | 200 | 365 | 3 – 2185 |
| OTHREV ($) | 5870 | 4413 | 5008 | 128 – 35970 |
| NEEDS ($) | 6814 | 6946 | 1191 | 3925 – 11430 |
| DEMA (%) | 12.5 | 9.43 | 9.07 | 0.08 – 28.7 |
| IPC (%) | 78 | 80 | 10 | 36 – 97 |

| Qualitative Variables | Categories | Frequencies | Percentages |
|---|---|---|---|
| Religious identification | | | |
| | MAJ | | |
| | 1 | 259 | 52.3 |
| | 0 | 236 | 47.7 |
| | MIN | | |
| | 1 | 44 | 8.8 |
| | 0 | 451 | 91.2 |
| | NREL | | |
| | 1 | 192 | 38.8 |
| | 0 | 303 | 61.2 |
| INTGP | | | |
| | 1 | 399 | 80.6 |
| | 0 | 96 | 19.4 |
| Types of students | | | |
| | PRIM | | |
| | 1 | 108 | 21.8 |
| | 0 | 387 | 78.2 |
| | PRSC | | |
| | 1 | 265 | 53.5 |
| | 0 | 230 | 46.5 |
| | SEC | | |
| | 1 | 122 | 24.6 |
| | 0 | 373 | 75.4 |
| GVT | | | |
| | 1 | 340 | 68.7 |
| | 0 | 155 | 31.3 |
| Province | | | |
| | AB | | |
| | 1 | 81 | 16.4 |
| | 0 | 414 | 83.6 |
| | BC | | |
| | 1 | 194 | 39.2 |
| | 0 | 301 | 60.8 |
| | MB | | |
| | 1 | 51 | 10.3 |
| | 0 | 444 | 89.7 |
| | QC | | |
| | 1 | 169 | 34.1 |
| | 0 | 326 | 65.9 |

*Models and estimations procedures*

Based on the hypotheses presented in section 3, I estimate four additive models that can be described as follows:

Model I:
$$PCGRANT = \alpha + \beta_1 MAJ + \beta_2 NREL + \beta_3 Log(SIZE) + \beta_4 INTGP + \beta_5 Log(OTHREV) + \beta_6 BC + \beta_7 MB + \beta_8 QC + \varepsilon \qquad (I)$$

Model II:
$$PCGRANT = \alpha + \beta_1 Log(OTHREV) + \beta_2 NEEDS + \beta_3 PRSC + \beta_4 SEC + \beta_5 DEMAND + \beta_6 BC + \beta_7 MB + \beta_8 QC + + \varepsilon \qquad (II)$$

Model III
$$PCGRANT = \alpha + \beta_1 IPC + \beta_2 GVT + \beta_3 BC + \beta_4 MB + \beta_5 QC + \varepsilon \qquad (III)$$

Model IV
$$PCGRANT = \alpha + \beta_1 MAJ + \beta_2 Log(SIZE) + \beta_3 INTGP + \beta_4 Log(OTHREV) + \beta_5 NEEDS + \beta_6 PRSC + \beta_7 SEC + \beta_8 DEMAND + \beta_9 IPC + \beta_{10} GVT + \beta_{11} BC + \beta_{12} MB + \beta_{13} QC + \varepsilon \qquad (IV)$$

The unit of analysis is the private school authority. As previously mentioned in section 3, some variables are recorded at the school district level and at the provincial electoral district level. Multilevel modelling was initially considered, but the value of the intraclass coefficient that measures the proportion of level 2 variance (between subjects variance) (Hox 2002: 11-15) indicated that most of the variance in the dependent variable is located at the private school authority level. Therefore multilevel modelling is unnecessary for this study.

Since the dependent variable is continuous numeric I start with Ordinary Least Squares estimation. However, it is well known that OLS estimates may behave badly when the error distribution is not normal, particularly when errors are heavy-tailed (Fox 2002). The approach I use to remedy this situation is robust regression. More specifically I rely on the MM – estimator proposed by Yohai, Stahel and Zamar (1991) and implemented in the lmRob function of the *robust* library (Wang, Zamar, Marazzi and al. 2008) in the R environment[11].

Briefly stated, the idea behind robust regression is to downweight bad leverage outliers in order to produce more reliable estimates than those produced by OLS estimation.

Since this study deals with allocation of money and it expects to find differential treatment effects among private school authorities, it is interesting to consider as well the estimation of the covariates' effects on various locations of the distribution of the dependent variable. OLS and robust regressions perform conditional mean estimations whereas quantile regressions go a step further and allow the researcher to estimate the impact of every independent variable on any quantile of the distribution of the dependent

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[11] A similar output can be produced with the procedure *rreg* in Stata which also has a user-built function displaying goodness of fit statistics (*rregfit*).

variable (Hao and Naiman 2007: 3-4; Koenker and Hallock 2001: 145-146). Quantile regressions were performed with the *quantreg* library (Koenker 2008) in the R environment.

All four models were estimated with OLS and robust regressions. Only model IV was also estimated with quantile regressions.


## Results

I first comment on the results of OLS and robust regression models and then move to quantile regression results. As a rule, quantitative variables are centered to their mean level (Gelman and Hill 2007: 55).

The goal of this study is to determine which of three explanations best explain the variation in the amount of public funding to private school authorities. Specifically I ask: which of the organizational, responsive or electoral explanations is the best?

Table 3 displays OLS estimates of the four models. These estimates represent a starting point. However, since the results of robust regressions are more trustworthy, I only comment on them. Broadly speaking the organizational explanation does not receive much empirical support except for religion. Indeed, there is evidence of a significant difference between Catholic and Protestant private school authorities on one hand and the rest of private school authorities (i.e. non religious and minority religions) on the other hand. I observe a difference of about \$237 per student that favors Catholic and Protestant private school authorities over other private school authorities (see model IV$_{ROBUST}$). Contrary to what is generally found in the NPOs literature, size has no impact, nor has interest group membership. Non governmental revenues do have an impact but the sign of the regression coefficient supports the responsive explanation rather than the organizational hypothesis.

Overall the "responsive explanation" is largely supported by the data since all its components display a significant impact when considered in isolation from the other explanations (see model II$_{ROBUST}$). This remains true when they are confronted with other explanations. For instance Model IV$_{ROBUST}$ estimates that a 10% increase in the value of non governmental revenues leads to a decrease of about \$20 per student ($-213 \times \log(1.1) \approx -20.3$). It also estimates that for each additional dollar needed, the additional expected amount of granted money is about ¢12. Besides, the impact of students' category goes exactly in the expected order and direction. Indeed, primary level institutions receive less public money per student than do primary and secondary level private school authorities, which in turn receive less than secondary institutions. Finally, I stress that the demand for private education as a significant and negative impact on the expected amount of granted money. This is an unexpected result. It means the higher the demand for private education in a school district, the smaller the amount of public money received by private school authorities. Model II$_{ROBUST}$ and Model IV$_{ROBUST}$ estimate this effect to be about \$10 less for each additional point of percentage in the demand for private education. Though contrary to our initial expectation, this result could fit the responsive explanation too. Indeed, a negative relationship may indicate that provincial governments aim at helping more private school authorities where they are less overtly supported by the

population. This interpretation directly connects with the equity argument of the responsive explanation. Overall, this explanation is empirically supported.

The political model is less supported by the data. Though model $III_{ROBUST}$ displays a seemingly significant effect for the electoral competition variable, alternative specifications and bivariate analysis (not shown here) reveal that the relationship between electoral competition and the level of granted money is not linear, and that the variance of the joint distribution is not constant. The more competitive the provincial electoral districts, the more variance in the expected mean value of the dependent variable. The effect of the partisanship of the provincial electoral district (GVT) is not significantly different from zero. Perhaps quantile regression estimates would tell a different story.

Finally we do not generally observe a huge effect of the province, though it is true that British Columbia private school authorities seem to be slightly less financially supported by their provincial government than are authorities located in the other three provinces (see model $IV_{ROBUST}$).

Table 3 – Ordinary Least Squares and Robust (MM-estimator) multiple regressions of private school authorities grant amount

| VARIABLES | $I_{OLS}$ | $I_{ROBUST}$ | $II_{OLS}$ | $II_{ROBUST}$ | $III_{OLS}$ | $III_{ROBUST}$ | $IV_{OLS}$ | $IV_{ROBUST}$ |
|---|---|---|---|---|---|---|---|---|
| Intercept | 2584*** | 3026*** | 2905*** | 3120** | 3251*** | 3350*** | 2652*** | 2994*** |
|  | (164) | (154) | (137) | (105) | (127) | (126) | (183) | (158) |
| MAJ | 645*** | 469*** | —— | —— | —— | —— | 314** | 237** |
|  | (149) | (139) |  |  |  |  | (89) | (74) |
| NREL | 253+ | 32 | —— | —— | —— | —— | —— | —— |
|  | (147) | (136) |  |  |  |  |  |  |
| Log(SIZE) | -18 | 69+ | —— | —— | —— | —— | -18 | 38 |
|  | (38) | (36) |  |  |  |  | (42) | (35) |
| INTGP | 267* | 187+ | —— | —— | —— | —— | 237* | 133 |
|  | (106) | (101) |  |  |  |  | (103) | (90) |
| Log(OTHREV) | -142*** | -249** | -175** | -262*** | —— | —— | -108* | -213*** |
|  | (54) | (50) | (53) | (41) |  |  | (54) | (47) |
| NEEDS | —— | —— | 0.10* | 0.11** | —— | —— | 0.07 | 0.12** |
|  |  |  | (0.05) | (0.04) |  |  | (0.05) | (0.04) |
| PRSC | —— | —— | 328** | 358*** | —— | —— | 228* | 249** |
|  |  |  | (101) | (76) |  |  | (112) | (95) |
| SEC | —— | —— | 559*** | 824*** | —— | —— | 406** | 618*** |
|  |  |  | (119) | (91) |  |  | (127) | (108) |
| DEMA | —— | —— | -19*** | -11** | —— | —— | -13* | -9.7* |
|  |  |  | (5) | (4) |  |  | (5.6) | (4.7) |
| IPC | —— | —— | —— | —— | 21.6*** | 21.5*** | 6.6 | 0.5 |
|  |  |  |  |  | (4.3) | (4.1) | (4.9) | (4.1) |
| GVT | —— | —— | —— | —— | -26 | 64 | -50 | 32 |
|  |  |  |  |  | (90) | (90) | (85) | (71) |
| BC | -43 | -298** | -61 | -216* | -76 | -178 | -33 | -292** |
|  | (114) | (107) | (133) | (101) | (119) | (119) | (132) | (113) |
| MB | 71 | -119 | 314+ | 123 | 166 | 123 | 173 | 102 |
|  | (153) | (140) | (167) | (123) | (159) | (156) | (169) | (139) |
| QC | 334** | 32 | 328* | -86 | 347** | 164 | 406** | -55 |
|  | (125) | (118) | (144) | (110) | (124) | (122) | (153) | (131) |
| F | 10.53*** |  | 11.46*** |  | 8.6*** |  | 9.3*** |  |
| $R^2$ adjusted | 0.13 |  | 0.16 |  | 0.07 |  | 0.18 |  |
| Robust $R^2$ |  | 0.18 |  | 0.23 |  | 0.07 |  | 0.25 |
| N | 495 | 495 | 495 | 495 | 495 | 495 | 495 | 495 |

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; + $p < 0.1$. Standard errors in parentheses.

Table 4 displays the estimated impacts of the independent variables on different locations (quantiles) of the dependent variable. It offers an invaluable complement to traditional and robust regression estimates.

The organizational explanation does not perform better in the quantile regressions of Table 4 than it did previously. Indeed, its components are not significant most of the time. Religion however stands a little apart (just like it did previously). Catholic and Protestant school authorities up to the median of the dependent variable receive significantly (though decreasingly) more money than do other private school authorities. For example, the model predicts that among private schools authorities located at the tenth percentile of the distribution of the dependent variable (i.e. the amount of money granted to private schools authorities), Catholic and Protestant authorities are expected to receive about $700 more per student than do other private school authorities. The expected amount decreases as one moves upward in the quantiles. Thus at the 20th percentile, the expected effect is about $336, at the 40th percentile it is about $261. Above the median, this effect is no longer significant. This means that the religious status does not have an impact on the amount of money received from the provincial government beyond that point.

The responsive explanation fits the data very well and its magnitude is rather constant across the distribution of the dependent variable. This is particularly true of the "type of students" variables and to a lesser extent of the non governmental revenues and needs variables.

Finally, the political explanation does not seem at first sight to perform better than it did with OLS and robust estimations. I note however that electoral competitiveness has a significant impact on the lower levels of the dependent variable, which means that up to the 20th percentile, more competitiveness in a provincial electoral district means more money for private school authorities. Poorly publicly funded private school authorities benefit from being located in a competitive electoral environment. Above the 20th percentile the relation fades out, which means that the level of electoral competition does not relate to the amount of public money received by private school authorities anymore[12].

Let me mention finally that the province does have an impact though it is limited to the first ten percentiles of the distribution of the dependent variable. The quantile regression estimates of model IV suggest that the less publicly funded private school authorities financially benefits from being located in British Columbia, Manitoba or Quebec as opposed to Alberta.

The results displayed in Table 5 can also be visualized in Figure 1 (see p.23)

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[12] Once again, the bivariate plot of the dependent variable against the index of potential competition shows a linear relation on the first 20 percentiles only. Afterwards the variance of the residuals grows rapidly.

Table 4 – Quantile regression estimates of private school authorities grant amounts (model IV)

| Quantile($\tau=$) | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |
|---|---|---|---|---|---|---|---|---|---|
| Intercept | 184 | 1785*** | 2365*** | 2613*** | 2787*** | 3106*** | 3311*** | 3549*** | 3755*** |
| | (559) | (394) | (322) | (235) | (202) | (165) | (166) | (236) | (314) |
| MAJ | 711** | 336* | 313** | 261** | 153[+] | 109 | 72 | 85 | 135 |
| | (224) | (157) | (106) | (95) | (81) | (76) | (66) | (74) | (108) |
| Log (SIZE) | 98 | 87 | 66 | 44 | 4.4 | -19 | -35 | -72 | -230** |
| | (82) | (59) | (59) | (53) | (41) | (35) | (34) | (45) | (80) |
| INTGP | 212 | 183 | 182 | 169 | 184 | 159[+] | 87 | 71 | 158 |
| | (228) | (215) | (156) | (126) | (112) | (90) | (93) | (107) | (208) |
| Log (OTHREV) | -239* | -166* | -154* | -151* | -112[+] | -109[+] | -126* | -139[+] | -43 |
| | (112) | (73) | (60) | (62) | (64) | (61) | (58) | (76) | (75) |
| NEEDS | -0.07 | -0.01 | 0.02 | 0.05 | 0.09[+] | 0.10** | 0.1* | 0.13 | 0.18[+] |
| | (0.07) | (0.05) | (0.06) | (0.05) | (0.05) | (0.04) | (0.04) | (0.08) | (0.10) |
| PRSC | 345* | 347* | 355** | 335* | 415** | 314** | 301** | 202 | 241 |
| | (167) | (170) | (135) | (146) | (129) | (104) | (105) | (178) | (287) |
| SEC | 651*** | 677*** | 651*** | 624*** | 652*** | 670*** | 753*** | 599** | 446 |
| | (165) | (178) | (166) | (161) | (137) | (131) | (133) | (181) | (344) |
| DEMAND | -7.2 | -12.7* | -15.3** | -14.4** | -8.98* | -8.5* | -10.62* | -9.5[+] | -9.8 |
| | (8.5) | (6) | (5.2) | (4.5) | (4) | (4) | (4.4) | (5.5) | (8.2) |
| IPC | 18* | 11.2[+] | 5.9 | 5.2 | 5 | 0.03 | -0.55 | 1.23 | 4.1 |
| | (7.6) | (6.2) | (5.1) | (4.8) | (4.7) | (3.7) | (3.5) | (3.7) | (5.2) |
| GVT | 164 | 145 | 93 | 33 | 7 | -15.8 | -18.7 | -4.5 | -95 |
| | (139) | (100) | (91) | (67) | (60) | (63) | (62) | (73) | (166) |
| BC | 1074* | 35 | -282 | -171 | -164 | -161[+] | -152 | -142 | -125 |
| | (531) | (289) | (223) | (140) | (112) | (96) | (112) | (205) | (282) |
| MB | 1315* | 444 | 39 | 100 | 150 | 118 | 86 | 61 | 84 |
| | (525) | (290) | (215) | (126) | (110) | (114) | (114) | (145) | (215) |
| QC | 1594** | 540 | 146 | 90 | 105 | -33 | -117 | -114 | 232 |
| | (520) | (342) | (248) | (157) | (122) | (119) | (131) | (174) | (244) |
| Pseudo $R^2$ | 0.24 | 0.25 | 0.22 | 0.20 | 0.18 | 0.16 | 0.14 | 0.12 | 0.11 |
| N | 495 | 495 | 495 | 495 | 495 | 495 | 495 | 495 | 495 |

Notes: ***p<0.001, **p<0.01, *p<0.05, [+]p<0.1. Bootstrap standard errors in parentheses.

The description of Figure 1 is strongly based on Koenker and Hallock (2001: 149-150). It displays 14 panels, one for each 13 independent variables (or covariates) and one for the intercept. For each of the 14 coefficients, I plotted 19 distinct quantile regression estimates for $\tau$ (i.e. the value of the quantile considered) ranging from $\tau = 0.05$ to $\tau = 0.95$ as the solid curve with filled dots. For each independent variable, these point estimates may be interpreted as the impact of a one-unit change of the independent variable on the amount of money granted to the private school authority holding other independent variables fixed. Thus, each of the plots has a horizontal quantile scale, and the vertical scale in dollars indicates the independent variable effect. The dashed line in each figure shows the OLS estimate of the conditional mean effect. The two dotted lines represent conventional 90 percent confidence intervals for the least squares estimate. The shaded gray area depicts a 90 percent pointwise confidence band for the quantile regression estimates.

In the first panel of the figure, the intercept of the model may be interpreted as the estimated conditional quantile function of the amount of granted money for a private school authority that is not Catholic nor Protestant, is at the mean logged size level, does not belong to the organized interests association, is at the mean logged non governmental revenues level, is at the mean level of needs, teaches only to primary level students, is located in a school district where the demand for private education is at its mean level, is located in a provincial electoral district in which the index of potential competition is at its mean level, is located in a provincial electoral district held by an opposition party, is located in Alberta.

Since Figure 1 displays graphically the information already given numerically in Table 4, the results are identical. We can stress that the organizational explanation has no explanatory power save the religious status for private school authorities located below the median level of provincial grants. The responsive explanation is more supported by the data, which is of course shown in Figure 1. The significant impact of electoral competitiveness on the dependent variable is clearly visible as a declining curve. The same is true of "Alberta specificity" as captured in panels "BC", "MB"; "QC" in which the curve starts high on the vertical axis and then decreases rapidly.

Figure 1 – Ordinary Least Squares and Quantile Regressions Estimates of Model IV
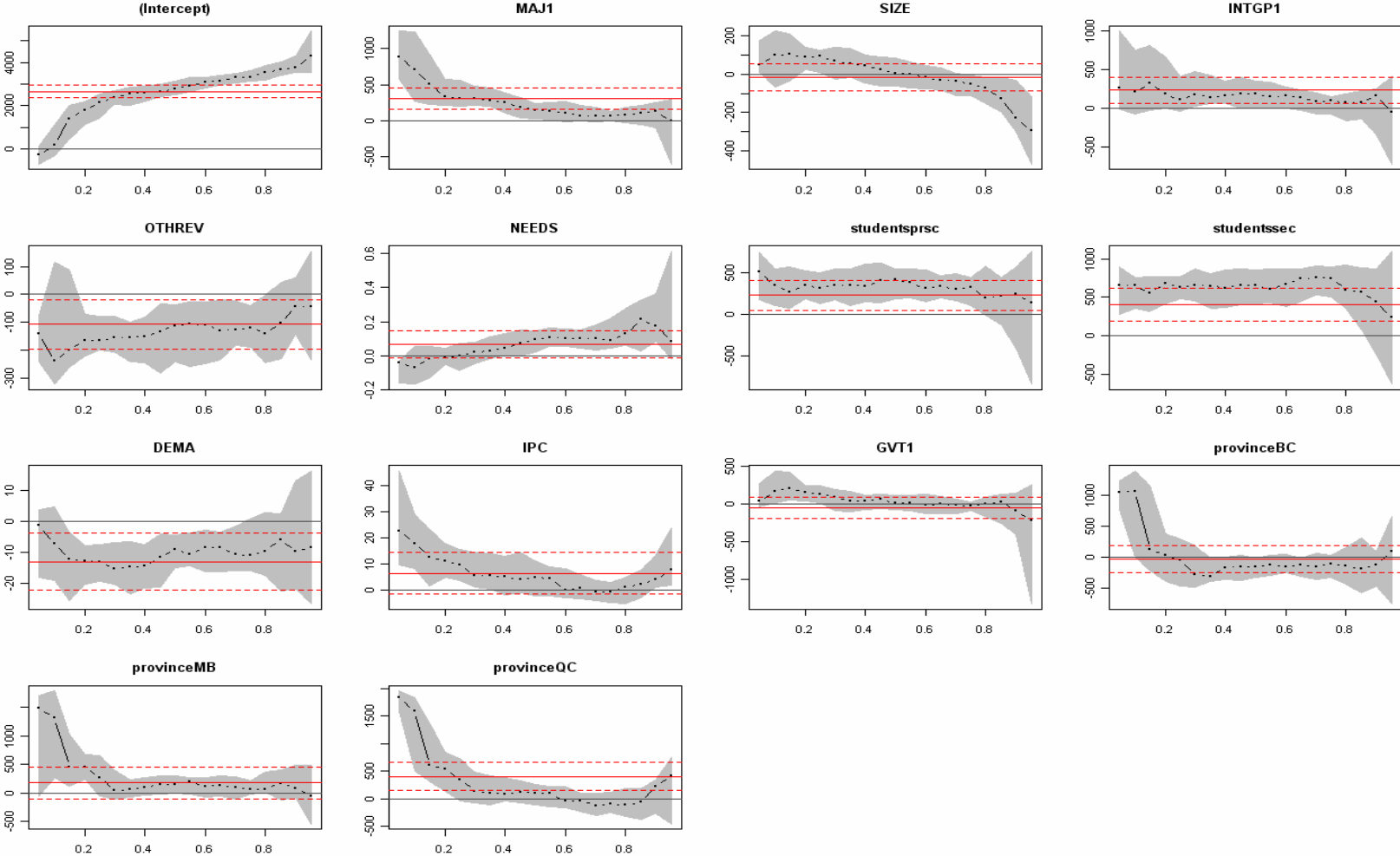
**Discussion**


The results presented in the former section can be summed up as follows. Overall, estimated regression models I to IV strongly support the responsive explanation. This result means that the amount of public money received by private school authorities is first and foremost a function of their "needs". Therefore less alternatively funded private school authorities receive more public money, so do private school authorities located in needier public school districts and schools with older and more advanced students. In this regard, the four provincial governments analyzed in this study largely behave in an equity-oriented manner toward private school authorities.

In my opinion, two additional results are of equal importance though they are more subtle and weaker in terms of magnitude. At first sight, we see that the organizational and electoral explanations do not seem to work well. However a closer look at two variables and at the quantile regression results tells a different story. Indeed, I found that Catholic and Protestant private school authorities receive significantly more public money than do the rest of private school authorities. This provides some empirical ground and confirmation to studies of "elite pluralism" (Beaman 2003, Côté 1999, 2003). However this advantage is circumscribed to Catholic and Protestant school authorities that are located below the 50$^{th}$ percentile of the dependent variable. Moreover the advantage is monotonically decreasing until it reaches zero at the median level (that is a diminishing marginal returns pattern). Therefore one should be careful in interpreting this result.

The second interesting finding concerns the electoral explanation. It is true that robust regressions as well as quantile regressions results show that on average private school authorities do not benefit nor do they suffer from being in a provincial electoral district held by the governmental party. At first sight, a similar diagnosis applies to electoral competitiveness. However, quantile regressions suggest that a significant effect exists and that is mainly located at the lower end of the distribution of the dependent variable. Bivariate plots (not shown here) tell that there is a strong, positive and linear effect of electoral competitiveness that vanishes somewhere between the 10$^{th}$ and the 20$^{th}$ percentiles. It means that private school authorities that are the less publicly funded are those who benefit the most from being in a competitive electoral district.

What is there to conclude about the public funding of private education? I must first emphasize that this funding is mostly a responsive phenomenon. Provincial governments act through the funding of private education proportionally to the needs of the grantees. Organizational characteristics do not generally affect the amount of grants, contrary to the findings of earlier researches conducted on NPOs in Canada and in the US. Similarly, the empirical analysis does not strongly support the idea of a link between the public funding of private education and the state of private schools' electoral environment. However, the localized impact of private schools' religious status and electoral competitiveness definitely suggest that further research is needed in order to clarify these two puzzling results.

**Conclusion**

This paper focused on the determinants of the public funding of private education in four Canadian provinces. Overall, the empirical analysis suggests that provincial governments tend to support private school authorities proportionally to their financial needs. This can be thought of as an illustration of provincial governments concerns for equity among private education operators. In other words, provincial government generally funds to a larger extent those among private schools authorities that receive less non governmental revenues, are located in needier school districts, and teach to secondary level students.

This study has also highlighted the circumscribed impact of the religious status of private school authorities, as well as that of the electoral competitiveness in the private school authorities' environment. These two localized impacts surely deserve further investigation.

Another avenue for research is that of the probability for a private school authority to be public funded. It could very well be indeed that non significant predictors included in this study actually impact on the odds for a private school authority of being funded rather than on the level of the funding.

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