STUDENTS' AID POLICIES:
A COMPARATİVE MİXED-METHOD STUDY OF TWO FEDERAL CASES

by

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Abstract

In the last decades, OECD countries witnessed more than one way of designing students' aid policies, under a predominant trend of decentralizing their governance. However, this decentralizing process carried the seeds of its own contradictions. The central paradox is that these policies remained multi-issue and multi-actor, making them likely to fall under the double-hand of different governmental levels.

Federal countries constitute a laboratory to study the "decentralization experiment" in its absurdity. For this reason, the PhD project proposes a comparison between two federal cases (i.e. the United States and Canada), and in time (between 1930 and 2018), using a mixed-method. The analysis is also extended in a discussion of four embedded deviant case studies (Alaska, New York, Prince Edward Island and Quebec).

Albeit usually simplified as paradigmatic cases for liberal, elitist, loan-oriented and tightfisted aid systems, the United States and Canada have proved to be more generous over student aid than what is expected from their respective welfare regime. Nevertheless, behind this engagement, I uncover an intergovernmental contention of powers and responsibilities embedded within deeply rooted federal institutions. With a focus on federal structures and dynamics, I also reveal potential political and economic incentives behind student aid.

Beyond the common belief that students' aid exists solely to help students, the thesis shows how these policies might be more grounded in institutional factors than student-related considerations.

Acknowledgments

I would like to thank my wonderful family for their unconditional love and support, my supervisors, professors, PhD companions and all those who helped me out in these last tough but amazing years.

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Abbreviations

ACPE	Alaska Commission on Postsecondary Education
ASCL	Alaska Student Loan Corporation.
CMEC	Council of Ministers of Education, Canada
CON	Congruence Analysis
CSGP	Canada Student Grants Program
CSLP	Canada Student Loans Program (Canada)
DoED	Department of Education (United States)
FAFSA	Free Application for Federal Student Aid
FEOSOG	Federal Supplemental Education Opportunity Grants (United States)
FFELP	Federal Family Education Loan Program (United States)
FGT	First Generation Theory of Fiscal Federalism
FSEOG	Federal Supplemental Educational Opportunity Grant (United States)
HEA	Higher Education Act (United States)
HESC	Higher Education Service Corporation
IMF	The International Monetary Fund
LEAP	Leveraging Educational Assistance Partnership (United States)
MISAA	Middle Income Student Assistance (United States)
OECD	The Organisation for Economic Co-operation and Development
PEI	Prince Edward Island
RESP	Registered Education Savings Plan (Canada)
SGT	Second Generation Theory of Fiscal Federalism
SSIG	State Student Incentive Grant (United States)
TAP	Tuition Assistance Program (New York)
VRA	Veterans Rehabilitation Act

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1 Student Aid from a Federal Perspective

“I suggest to call ‘federalist problem’ any situation where two antinomic human realities, but equally valid and vital, confront each other, in such way that the solution could not be found in the reduction of one of the terms, nor in the subordination of one to the other, but only in a creation which encompass, satisfy and transcend the requirements of both”

Denis de Rougemont, Lettre aux Européens (1976, 118)

1.1. Introduction

Education policies present an interesting paradox. On the one hand, since the early 1980s, many countries converged towards decentralizing their education policies, becoming an undeniable global trend in both unitary and federal contexts (Burns and Köster 2016; OECD 2014, 2017, 2018). Taking the United States and Canada as federal examples, the problem of education is assumed to have been constitutionally solved by putting it under the jurisdiction of subnational units, without positing a ‘federalist problem’. On the other hand, scholars have recently been insisting on adopting multi-level approaches to education policies. Not as a pure nuisance, but because the education literature has reached a desperate point where single-level analyses no longer explain the complex -at times erratic- behavior of these policies (Bettinger and Williams 2014; Chou et al. 2017; Frost et al. 2016). Therefore, should education -an apparently decentralized policy- be addressed from a multi-level standpoint? And why would it be relevant?

In this thesis, I address this paradox through intergovernmental student aid as the main dependent variable**, with a focus on vertical relations between federal and subfederal levels of governments.**

Student aid policies are defined as the design and implementation of public financial support towards post-secondary students. A topic of personal interest, I became fascinated with student aid policies as they carry the seeds of their own contradiction. For some, they are conceived to further the education of individuals, their participation in the social and political life and in the knowledge economy; all contributing to the advancement of society as a whole. For others, they only contribute to the private gain of individuals, are biased towards benefitting the middle-class, and has been inefficient in guaranteeing access and completion. By falling borderline between welfare and education, student aid is attached to contrasting goals and ideologies, which explains why it would appeal to different policy actors and may fall under different governmental functions.

So far, singling out one level of analysis is telling conflicting stories. For example, in the United States, after the 2008 crisis, those who focus solely on the federal level would see a recovery of student aid, recently reporting unclaimed $2.6 billions in student aid benefits[i]. Differently, those who focus on the state level would paint a sinister scenario of a dramatic decline in student aid spending, recently reporting a loss of benefits for nearly one million applicants[ii]. No wonder, the U.S federal level spends billions of dollars every year on student aid, yet no evidence has established the impact of one single level's effort on students attendance and completion (Alon 2011; Kane 1995; Yuen 2017). One possible explanation is that education policies are influenced by both levels as well as their interactions. For example, Stephen Craig and Robert Inman found a significant impact of intergovernmental relations on school spending (Craig and Inman 1982). Another study by Martin Feldstein showed the effectiveness of a specific type of federal grants in increasing local education spending (Feldstein 1978). In the same line, a study by Oberg showed that cooperative and redivision federalism influence the different types of state disbursement towards higher education students (Oberg 1997). Recently, a study by Bettinger and Williams (2014) tracked the causal link between federal reforms and state decision making over student grants, in the period after the 2008 financial crisis. As these events and empirical studies suggest, multi-level analyses are highly needed.

So what is the institutional relevance of multi-level analyses? In this thesis, I refer to the term *governance* intended as "*the possible ways in which policy actors, including governments, combine to solve collective problems and thus affect the ways in which policy processes are steered*" (Capano 2014, 316). Multi-level governance goes beyond describing policies at different governmental levels. It addresses the locus of powers and responsibilities (and its change) among the levels, as well as the institutions that govern intergovernmental relations. As a typology of multi-level governance, federalism is considered as both a political and economic institution.

The political aspect is manifested through formal and informal rules that distribute powers between the levels. Since education is multi-issue, its functions can fall under the double-hand of different levels. For example, student aid can be defined under a subnational overview of education, and at the same time under the national jurisdiction when designed towards Native American or advance national scientific research. Furthermore, being a multi-actor policy, there is a likelihood that stakeholders would operate or shop under different levels (e.g. Brackett 2016; Cook 1998). Therefore, this complexity makes student aid clash with the existing distribution of functions, creating a conflicting point between the governmental levels. For example, the establishment of early U.S programs demanded a federal interference over education, creating significant federal-state conflicts that still persist today. In 2017, the Education Federalism Executive Order reflects such tension as it aimed to "*restore the proper division of power under the Constitution between the Federal Government and the States and to further the goals of, and to ensure strict compliance with, statutes that prohibit federal interference with State and local control over education*"(The White House, 2017). Even worse, in the Canadian case, education is an integral part of intergovernmental political tensions:

"*Even before the Canadian state was officially born; Post-secondary education was an area of contention. The 1864 Charlottetown draft, of what would become the constitution, placed universities under federal responsibility. However, when the final version of the British North America Act was signed in 1867, the entire educational sphere had been relegated to provincial jurisdiction, primarily at the urging of Lower Canada*" (Fisher et al. 2006, 3). The initial pressure from Lower Canada[iii] has also endured the test of time, being reiterated during the 2018 electoral campaigns by the winning centre-right party in Quebec (Coalition Avenir Quebec).

Besides being a political institution, federalism also represents an economical set of rules and contracts that **answers the question of where fiscal powers and responsibilities lie.** When it comes to student aid, the fiscal role played by governmental levels is revisited during most federal budgetary hearings, with each level shoving responsibilities onto the other without a clear idea of where obligations do/should fall (e.g. hearings on annual budgets by the House Appropriations Subcommittee on Labor, Health and Human Services, and Education[iv]). When it comes to Canada, the significance of the federal spending power on education was more subtly recognized as:

"*Officially, there is no Federal presence in the area of educational policy, and the Federal government behaves…as if there were none. Not only is there no Federal authority with the "Education" in its title, but the Federal Parliament eschews all debates that might bear on educational policy… In reality though…a considerable Federal presence in educational policy is indeed tolerated by the Provinces" (OECD, 1975, p.89).*

When positing the question of where fiscal responsibilities over student aid should fall, two standpoints can be adopted.

The first sees student-related variables (e.g. students' need, demand) as the main driver for distributing fiscal responsibilities among the levels of government. In this sense, aiming to achieve the efficiency of student aid, multi-level contexts can acknowledge advantages to both decentralizing and centralizing this policy. Decentralisation could respond better to consumers' preferences, provide better

costs-to-benefits relations, experimentation with novelty, and an ability to develop inter-jurisdictional competition to improve policy learning. At the same time, the central role is often proven to be advantageous with regards to redistributive goals (Beauchamp and Bray 2006). It could serve as a stabilizer for the non-homogeneity between subnational resources (Baumert and Goldschmidt 1980), play an important role in limiting market failures (e.g. externalities), and provide fiscal incentives to invest on student aid as a marginal program.

Both processes are relevant as the distribution of students needs and demands remains unequal between states/provinces, making it impossible to have a perfect correspondence between the level of government and the subset of student population that it represents. Also, the goals of standardizing students' demands and equalizing expenditures among them are likely to be pursued for student aid, and can only be taken care of by the central level[v]. Furhermore, students might decide to continue their studies or work in other subunits, and thus the federal level can limit possible spillovers. Last but not least, as benefit taxes and user charges are generally assigned to the federal level, there is an interest in centrally-designing education tax credits[vi] and their incentives (tax-deductions) are attractive for subunits. Therefore, as both centralization and decentralization have advantages, this creates incentives for a continuous exchange/contention of powers and responsibilities between the levels.

The second standpoint considers other determinants for student aid's locus. In this case, fiscal responsibilities can be a result of both the constitutionally assigned responsbilities but also the resources available to each governmental level. In fact, the federal scholarship had long argued an inevitable "*law of the attracting power of the highest budget*" (Popitz 1927, as cited in Blankart 2000, 27), suggesting that available revenues are a significant factor in assigning policy responsabilities. The literature of fiscal federalism focuses on strategic assignments of tax and expenditures as well as intergovernmental instruments to carry these functions, equalize between the levels' share of revenues and their responsbilities, and that to achieve both policy but also fiscal efficiency.

<u>These assignments are highly relevant for the United States and Canada as the two countries have been facing structural budget deficits since the 1980s, challenging their ability to finance higher education in general, and student aid in particular. Despite enormous efforts employed by the U.S states in this regard, including the diversification of their public and private resources (e.g. state tax lotteries, interest-swaps with private banks), states have often lamented imbalances between their revenues and expenditures due to significant declines in the percent of tax and lottery revenue (Laderman 2018), increases in the toll taken up by healthcare programs on their budget (Finney 2014, Miron 2016), and increases in student aid demands that exceed growth in income (Finney 2014). In Canada as well, gaps between provincial revenues and expenditures have challenged the provincial ability to sustain higher education programs, despite significant mobilization for public and publicly guaranteed private capital (Lang 2005).</u>

Regrettably, student aid remains marginalized in both education and federal scholarships. Comparative analyses are weak, while multi-level approaches are almost non-existent. This paralysis is due to many methodological and substantive reasons. For a start, student aid has been crippled with a complete lack of data. The tortuous diversification of its programs did not help either, and no comparative metrics exist except for the attempt by the Organization for Economic Co-operation and Development (OECD) in the late 90s **<u>to collect data on student aid</u>**. As some authors stated, the policy is often "*perceived as too specific, not salient enough, less interesting, or less re-distributive than other spending areas*" (Garritzmann 2016a, 32). Luckily, recent studies are starting the change these perceptions. When it comes to its specificity, driven by ambitious comparative goals, courageous attempts took advantage of the OECD data and ventured into clustering countries based on their student aid policies, ending up with clusters similar - to a good extent- to the ones defining welfare regimes. Speaking about the saliency, in her work *The Submerged State*, Mettler explained student aid "submergence" by their private delivery and indirect subsidization rather than their political irrelevance (Mettler, 2011). With regards to the academic interest towards student aid, in his book *The Political Economy of Higher Education*, Garritzmann traced student aid through a Time-Sensitive-Partisan-Theory; opening the floor for further comparative political studies of this sub-sector policy (Garritzmann 2016).

Considering the above-detailed relevance, the thesis has two central goals: to describe and explain intergovernmental interactions specific to student aid. The thesis provides a systematic comparative analysis of two federal cases (the United States and Canada) in time (spanning between 1930 and 2018), and between the levels (National and Subnational). It forges ahead with an institutional approach, and its findings address both the education and federal scholarships.

I start this chapter by challenging the major assumptions upon which the current knowledge about student aid is based (section 1.2). After that, I present the rationale behind the choice of case studies (section 1.3). Then, I briefly present the major theoretical framework, which will be further elaborated in chap. 2 (section 1.4). The adopted methodology and collected data are presented in section 1.5, and the chapter concludes by introducing the major arguments as structured throughout the thesis (section 1.6).

1.2. The Limitations of the Clustering Business

Initially, "*the idea of education as a form of welfare or entitlement remains curiously absent from public policy analysis in the social sciences, even though it is a critical component of state legitimacy*" (Brown 2010, 12). However, in the last decades, this will change thanks to the explosion of the "clustering business" of welfare regimes initiated back in the 1990s. With his book *The Three Worlds of Welfare Capitalism*, Esping-Andersen classified welfare countries along two major dimensions: Decommodification and stratification. The former was defined as the condition when "*a (social) service is rendered as a matter of right and when a person can maintain a livelihood without reliance on the market*" (Esping-Andersen 1990, 22), while the latter was defined as the intensity of redistribution and the level of universality of solidarity that is imposed by the welfare state. Both indexes were centred on social policies, such as pension.

The idea appealed to education studies as they assumed it to be coherent with welfare principles. After all, social rights could be guaranteed when education and welfare belong to the same strategy of social protection. Under this logic, liberal countries such as the United States and Canada are expected to put the private cost of higher education on its students and inject more in loans than in non-repayable student grants. A conservative country like Germany is expected to encourage higher education as a matter of right and thus, be resilient to privatize its costs while a Scandinavian country such as Sweden would be more likely to adopt a universalistic approach by trying to equalize access to higher education for everyone.

Empirical evidence will attempt to sustain this view. In 2011, authors from the Center of European Public Studies (CEPS) ended up with four stratifying clusters: 1) a system equalizing in both social security and education (Anglo-Saxon countries), 2) a system stratifying both sectors (Germany and neighbouring countries), 3) a mixed system equalizing education and stratifying pension (a mix of both Nordic and Southern countries), 4) another mixed system stratifying education and equalizing pension[vii] (Beblavy et al, 2011). However, for more than half of the sample (i.e. 13 countries out of 22), state interventions on education did not follow the same stratification process as the one adopted for social security. Other researches accustomed Esping-Andersen's indexes of de-commodification and stratification to fit higher education[viii]. In doing so, Willemse and de Beer (2012) found a significant level of higher educational decommodification in social democratic countries, and a high level of stratification in the conservative ones. Nonetheless, the authors also found high levels of stratification in social democratic countries, low level of stratification in liberal countries; or again low levels of de-commodification in the conservative countries; all disconfirming the welfare expectations. A recent attempt also categorized countries according to the varying costs of education (Garritzmann 2016a). Overviewing 33 OECD countries, the author suggested the existence of four worlds of student finance: 1) low-tuition-low-subsidy (mainly in continental Europe, 2) low-tuition-high-subsidy (mainly in Nordic Europe), 3) high-tuition-low-subsidy (Asian countries, Latin American countries), 4) high-tuition-high-subsidy (Anglo-Saxon countries). After all, we cannot expect students' aid to weight similarly between countries where the average tuitions exceed 6000$ a year (e.g. USA, Canada[ix]) and those where higher education is free of tuition (e.g. Finland, Sweden). In addition, the author explained the differences between these four groups through party ideologies. Specifically, the high-tuition low-subsidy systems (e.g. Japan) were a result of the predominance of conservative parties, while the low-tuition high-subsidy (e.g. Sweden) systems were explained by the stable predominance of left-wing parties. However, high-tuition high-subsidy systems (e.g. the USA) could not be explained solely by his analysis of party ideologies at the federal level.

Recent events are also demonstrating how the clustering technique can turn a blind eye on within clusters' differences. For example, they cannot explain why the Canadian federal government would step in with generous programs (e.g. the Canadian Millennium Scholarship), why the German Constitutional Court ruled in favour of introducing tuition fees in 2005 (Adolino and Blake 2001), and why the Netherlands abolished its student grants in 2015 under *Partij van de Arbeid*, a social-democratic party committed to the building of the welfare state. Therefore, *had policies of student support really been in line with the welfare policy design of the country they belong to*?. In reality, the aforementioned studies are limited by their suppositions.

1. First, they assume a parallelism between education and social security. As examples, expecting high rates of social security coverage was translated into expecting high education enrolment rates. Also, the use of a total of grants and loans for education was used as an equivalent to income replacement in pension (in Willemse and de Beer 2012). This neglected the possibility that the two might have different policy goals and strive to be inclusive and electable of/by different groups of voters. Even the concept of de-commodification can be highly criticized as student aid does not necessarily replace income; as aid can be need-based, merit-based, or just to offset study costs.

2. Second, most clusters were based solely on financial instruments. In reality, the same change in expenditures could be translated into different policies of cost control, of access control, of controlling students' choices; or even to reach other goals (see Chapter 6, limitation n.4)[x]. Also, the stability of expenditures could either signal the absence of a governmental response or be simply a result of the bounded sustainability of public budgets. Esping-Andersen himself emphasized not building typologies on a mere differentiation between the levels of government spending since this latter also assumes spending to count equally among different contexts (Esping-Andersen 1990). For example, in the abovementioned studies, Hega and Hokenmaier (2002) deducted a misalignment between education and social security simply from raising expenditures on one sector to the detriment of the other. For de Beer and Willemse (2012), it was considered whenever Esping-Andersen's index scores (which are based on expenditures) differed from the ones applied to higher education.

3. Third, these studies disregard any possible change to the proposed clusters. Indeed, to re-assess the validity of Hega and Hokenmaier (2002), I engaged in a replication of the study and found that the trade-off between education and social security resolved around 1990[xi].

4. Last but not least, none of the above-mentioned contributions addressed the policies from a multi-level perspective. For example, when Garritzmann found that the United States was a deviant case in his study, he did not minimally suspect that its complexity could be due to its multi-level nature, which was also critically advanced in a review of his book (Jungblut 2017).

5. Absurdly, although education is often highly decentralized, most comparative analyses were done on the central level, for both unitary and federal countries. This is probably due to the ambitious comparative goals of clustering in front of the limitations of available data.

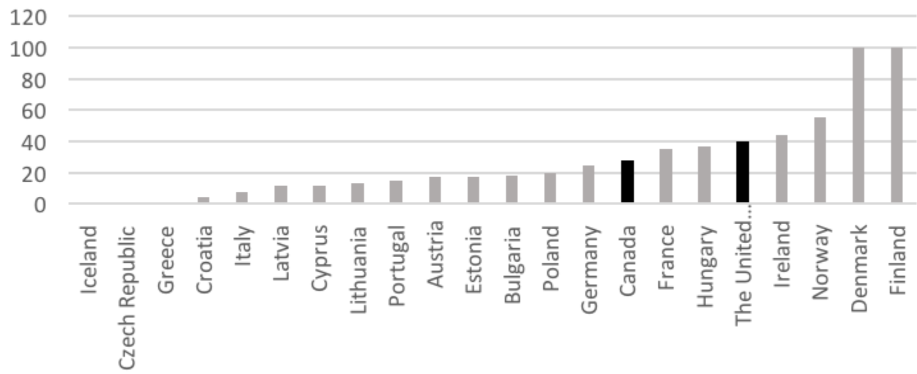

Figure 1. 1 The Proportion of Students Receiving Public Grants

Year 2013 – 2014 (Mixed Sources)

Note: Data had been gathered from different sources. Year 2013-2014 is the only year that enables such comparison as data from the European Commission (National Student fee and support system) on roughly 20 countries (as used in Thévenon 2015). This data was then compared to the case studies in this thesis. Data on Canada (amounting to 28% of students reporting to receive public grants) had been retrieved from the 2012 Graduating Student Survey (by the Canadian University Survey Consortium)[xii] Data on the United States (amounting to 39.6%) had been calculated as the average of receivers of federal, state and institutional grants and was retrieved from the National center for Education Statistics[xiii].

All in all, clustering countries[xiv] has been a courageous effort to revitalize the interest in student aid. It also gave an interesting insight into these policies. However, it prevented from investigating "within-cluster" differences, the multitude of policy instruments, longitudinal changes to the clustering arrangements, and multi-level interactions over policies. It is based on improving these limitations that the case studies will be selected.

1.3. Case Study Selection

The selection of a Small-N comparison is based on three criteria: 1) controlling for the welfare explanations and that by choosing countries within the same welfare regime, 2) choosing countries that differ in the explanans/independent variables (institutional explanation), enabling a multi-level analysis; 3) choosing countries that differ in the explanandum/dependent variable (intergovernmental student aid trajectories).

1.3.1. Why the Liberal Model?

The interest in student aid could tempt towards the Social Democratic model, in view of its generosity and high decommodification (section 2.1). While this may be true, it is the liberal model's interest in education that remains puzzling. Often associated with poor welfare efforts, liberal countries are yet found to have a high interest in education. Since early comparative works involving the United States, Flora and Heidenheimer (1981) concluded that that post-absolutist continental Europe combined education for elites and social insurance for non-elites, while the United States, for example, focused only on education as an alternative to this combination[xv]. Also, Hega and Hokenmaier (2002) concluded that the welfare-education "trade-off" is more pronounced in liberal countries than conservative ones. The same findings were also confirmed by Pechar and Andres (2011)[xvi]. As puzzling as it sounded, liberal welfare governments played a significant role in encouraging education. Even when looking at only non-repayable programs (e.g. grants that students do not need to repay), several liberal countries had been "more generous" than "expected" (Fig. 1.1).

1.3.2. Why Federal Systems?

The interest in federal studies has been revitalized since the 90s. The global decentralization of major social policies and the emergence of new multi-level configurations (e.g. European Union) had scholars reconsider the applicability of old federal frameworks, question the change in central governance and try to explain varieties between federal systems. Multi-level governance became a "*broadening the classical concept of federalism to include more than two levels of government and more than* *autonomous policy-making structures*"(Stein and Turkewitsch 2008, 7) and as new configurations were authority and power are "dispersed" among a network of arenas (Elazar 1991). What is more, the fact that federal scholarship married the institutional approach moved it from mere descriptions of federal processes into more refined analyses of the institutions and the specific policies that underwrite this process. Consequently, there is substantial interest within the federal literature on how and why the distribution of responsibilities and powers between various governmental levels is achieved. Also, when it comes to education, answering this last question has indeed not been as straightforward as early federal theorists assumed.

1.3.3. Why the United States and Canada?

The arguments behind choosing the United States and Canada can be summarized as the following:

i. Allowing to control for background variables:

The United States and Canada enabled a good level of control over many functional variables. The two countries represent industrialized economies, with an elitist educational system, highly trained labour force and elevated living standards. On average, the two countries followed similar trends of GDP per capita growth[xvii], and faced significant public deficits[xviii]. Last, although tax revenues differ substantively between the countries, their overall cycles (as a percentage of GDP) are fairly comparable.

ii. Being different in the explanans (independent variable)

The United States and Canada allow controlling for the welfare regime type while confronting two major views of theoretical interest (i.e. federal institutions). Early federal approaches considered the two countries under the same dual federal system. Nevertheless, the accumulated knowledge about the two systems as well as the renaissance of federal studies, are rather moving towards dispelling similarities between the two systems.

For a start, while the national unity is strong in both countries, it is easily threatened in the case of Canada with unresolved intergovernmental problems touching the sovereignty of the units. The irony also is that, initially, the two countries departed from the exact opposite foot as Canadian constitutions aimed for more central power while the United States aimed for more power at the hands of the states. Nevertheless, each country evolved to be the plan for the other. The two systems also differ in the way they distributed their legislative power for specific policy sectors. What is more, the assignment of legislative power between the levels is mutually exclusive in the Canadian case while in the United States, both levels are allowed to regulate over the same policy. All these differences have the potential to affect student aid policies and how their responsibilities are distributed. The two systems also differ in their fiscal federalism. Fiscal power is more diffused in the United States than in Canada. The three-tiered fiscal structure in the United States is unstructured due to the multitude of policy actors (national, state and local) but also to the fiscal strength and independence of local government. The two countries also differ massively in the degree of federal constraints over subunits, and the instruments used to exercise such constraints. While both emphasize on intergovernmental transfers, the United States relies more on block and categorical grants, where the discretion of the federal level is very high, differently from Canada that relies more on unconditional grants. Equalizing efforts are also dissimilar, with Canada more oriented and effective in redistributing resources among the provinces. The unstructured relations in the United States signal poor coordination between the levels, which is often non-institutionalized. By contrast, Canada is likely to emphasize the cooperation between its level and consultation during policy-making. Cooperation is often institutionalized in annual meetings of first ministers (prime minister with all provincial ministers), meetings of deputy ministers, and senior departmental officers.

The framework that will be adopted by this thesis is one of the very few to consider them within two different federal ideal-types (chapter 2). Nevertheless, as it differentiates between the two systems' dynamics, it considers their structures as similar. Hence, this framework constitutes an interesting arena to confront two alternative hypotheses, making this small-n study contribute to a broader theoretical discourse.

iii. Being different cases on the explanandum (on the dependent variable):

Thus far, analyses of multi-level student aid are absent. Nevertheless, there are many reasons to suspect their differences rather than their similarities. The existing literature tends to assimilate the two countries as paradigmatic for loan-oriented, high-tuition and poorly redistributive students' aid systems. Even if student aid might have appeared similar at its genesis (Garritzmann 2016a), when you fast forward seven decades, the United States' became closer to the prototype of the high-tuition high-subsidy model than Canada. It grew towards highly generous federal non-repayable programs, massive tuition fees' increase (higher than the inflation rate), averaging to $10,000, next to a $1.5 trillion student loan debt (as estimated in 2019). On the other hand, the Canadian system became more oriented towards loans (and also tax credits), managed to contain tuition fees to an average of $6,000 and dampened the mid-90s student loans' debt to a point where it became just a "myth"(Usher 2014). Consequently, by choosing the United States and Canada, the thesis asks: *Could two countries, in the same welfare clothing and under the same starting gun, end up on two different rail tracks? why would they choose different trajectories? And could these differences be embedded in the different federal institutions that distinguish their systems?*

1.4. Theoretical Framework and Methodology

In the last decades, political science identified around seven traditions of institutionalism[xix], all of which recognize the fact that "institutions matter" in explaining policy change and stability (Peters 1999). Among these traditions, historical institutionalism and rational choice emerged as the two most important research pillars of the field.

At its core, the thesis aims to establish *whether* and answer *how and why intergovernmental student aid trajectories changed over time*. Nevertheless, before adopting an institutional tradition, the thesis explores different possible approaches to the same question. A trajectory starts with a point of departure, has a content and follows a direction. When it comes to first, theoretical frameworks differ in whether small differences in initial events (or conditions surrounding them) matter. The content of the trajectory, defined through the stability and change of multi-level responsibilities, can be approached from a linear, or non-linear approach. Related to these possibilities, change can be seen as either process-driven or goal-driven, the latter allowing equifinality. Therefore, facing this frontage road, the thesis will attempt to bridge between these paradigms, and only then, propose a framework between historical institutionalism and rational choice approaches. While the former will define historical boundaries for change, the second will provide a goal-driven explanation (chapter 2).

In its analysis of student aid trajectories, the thesis resorts to congruence analysis (CON) defined as "*a small-N research method in which the researcher uses case studies to provide empirical evidence for the explanatory relevance or relative strength of one theoretical approach in comparison to other theoretical approaches*" (Blatter and Haverland 2012, 144). The main purpose of this method is to draw inferences from the congruence or non-congruence of concrete observations with the predictions of dominant theoretical frameworks and confront them (Blatter et al 2008). Put simply; the approach allows for positing two following questions: *Do federal theories provide a relevant explanatory insight on student aid that no other theory has revealed*? *Could federalism be the best explanation for student aid trajectories and their possible differences between the United States and Canada*? *Which view provides the most relevant explanation to student aid: the one viewing their federal systems as different? Or similar?*

Student aid is expected to be both reflecting existing structures and dynamics of the United States and Canada's federal systems, but at the same time, if they are not congruent, then this in itself challenges both the applicability of the theory on this specific policy and/or the very same adopted theory. In doing so, CON enables to draw inferences from single case studies towards abstract theoretical relationships. What is more, CON enables engaging in the process of constructing and interpreting data under both a deductive and inductive process. Last, CON allows approaching multi-faceted dependent variables that cannot be aggregated into a one-dimensional phenomenon (Blatter and Haverland 2012).

Each of the previous expectations will be based on a mixed-method that merges: 1) a case-oriented study with 2) a variable oriented study. The combination between a qualitative and quantitative method helps overcome the limitations presented by each method respectively: 1) the tendency towards particularizing and 2) the tendency towards the abstract and the average (Ragin 2014). Both methodologies allow to infer the best explanation and cross-validate the same argument with more than one method of investigation.

The countries can be considered as overall cases as the thesis considers two units of analysis: 1) multi-level and 2) in time.

1.5. Data Selection and Sources

Students aid policies created a complex and diversified universe of aid programs, stemming from significant monthly stipends, to insignificant waiving for the purchase of university books. In this thesis, I selected grants, loans and tax credits to represent student aid based on the following main criteria:

- **The existence of these programs in the two case studies.**
- **Their significance (in their amount and coverage), as they represent the lion-share compared to other programs.**
- **The availability of their data in both countries.**
- **The comparability of the collected data in both countries, especially for grants and loans.**
- **The research interest, which is mainly the involvement of state actors (non-private actors) in the financing (disbursement and/or return) and regulation.**

For example, the thesis excludes in-kind services (no comparable data), the indirect control over study cost (no available and comparable data) and several programs with little or no governmental involvement (e.g. Mortgage-type loans provided by

private actors, privatized Human Capital contracts, Internally financed Students' loans, Creative financing…etc). Nonetheless, although these latter are not under the responsibility of public actors, it is fair to note that they can indirectly trigger the involvement of the federal level (e.g. the federal involvement in secondary market loans handled by the private group Sallie Mae).

The programs chosen for the definition of student aid can be defined as follows:

1. **Grants: Grants are a non-repayable way of disbursing money to student.**

2. **Loans: Loans can be either partially or fully repaid, unless in case of loan forgiveness under certain criteria (e.g. underserved geographic areas, disabilities, or death). Loans can be of two major types differing according to their repayment plans:**

   2.1. **Mortgage-type loans: They are characterized by their amortized repayment modality (i.e. through equal amounts over a fixed period) and their definition of "need" through means-tested criteria.**

   2.2. **Income-contingent repayment: Under this modality, repayment is done after graduation as a function of income. Differently from other countries where this modality is obligatory, In the USA and Canada, this modality is optional as borrowers can opt out of it unless they default on their students' loans.**

3. **Tax credits: Tax credits are offsets (or income deductions) against tax liabilities.**
   Deductions are a reduction of the amount of income that students or families are taxed on, and credits can reduce the amount of taxes that students owe after taking a loan. They can be tuition waiving (taxes offsetting tuition fees),

family allowances (tax system given to families to support children enrolling in universities) or to help repayment of loans (e.g. American Opportunity Credit, Student loan interest deduction, lifetime learning credit).

It is for this reason that the thesis chooses two ways to represent the universe of student aid. The first uses the metric of "total student aid" which includes grants, loans and tax credits. The second is disaggregated over loans and grants and aims to enhance the comparability between the two countries. The reason why tax credits are not compared singularly between the two countries is due to their differnt weight and calculation. As chapter 3 will elucidate, the U.S federal tax credits were established in the late 90s through the tax Payer Relief Act (1997), which created several credits for tuition and other study-related expenses (e.g. Lifetime Learning Tax Credit[xx] and the American Opportunity Credit[xxi]). Federal tax credits were not initially a big part of the aid system, but in the recent years, their amounts was reported to have increased significantly (United States GAO 2002), exceeding at time largest non-repayable federal programs (e.g Pell Grants) as observed from the collected data. Contrarily, in Canada, federal tax credits constituted the most important form of federal assistance to students up during their inception. A lot earlier than their fellow Americans, the federal level of Canada provided non-refundable[xxii] tuition tax credits (1961) and education tax credits (1974). Both programs were also encouraged provincially, but differed massively according to the taxing systems of the provinces, enhancing the complexity of collecting and comparing the data across provinces. Tax credits increased exponentially since the mid-90s. Recently however (2017), the federal government decided to eliminate education and textbook credits and some provinces followed suit (e.g. Ontario cancelled the same programs while Alberta kept them).

Throughout the thesis, students' aid policies will be defined through a variety of instruments (legislative, administrative, and financial). It follows that the data was extracted from various sources, guaranteeing a proper data triangulation, which serves to use different research methods to complement one another. Independent measures, data sources, policy instruments and contrasting theories are chosen so as to have multiple perspectives on the same dependent variables, see whether they converge towards the same results, and ascertain their validity (Almalki 2016; Denzin 1978; Fielding 2012; Maxwell 2005; Modell 2005; Della Porta and Keating 2008; Yazan 2015).

The dependent variable is defined through federal/subnational interactions and over time. This left me with: 1) 60 interactions (50 states and 10 provinces in the United States and Canada, respectively) and 2) over 50 years of observations accounting for a universe of over 3000 observations to collect. Data was solicited from contacting all 50 States and 10 Provinces, but the initial rate of reply was very low, and data was not available at the level of many subunits. Even if all subunits had provided financial data, covering the remaining information (e.g. legislations) for 60 subnational units would have been gargantuan.

To simplify the task, observations were chosen to represent the approached universe through sampling. The research used systematic sampling, a process by which I first selected a starting point (post-WWII) and then gathered information through a constant interval between the observations. I also started by describing the overall legislative climate (as an overall representation of all states and provinces) and a measure of the aggregate data (total expenditures of all states and provinces) which was then validated by primary data sources. Only then, I sampled four dyads of federal-subunit interactions: Alaska, New York, Quebec, and Prince Edward Island; and collected further data and information by interviewing them singularly.

There are several core factors that were influential during this triangulation:

- Face validity: whether the policy instruments (Legal, administrative and financial) are measuring what they intend to measure (i.e. the locus of student aid functions and responsibilities).

- Construct validity: whether the definition of student aid's construct as a trajectory (i.e. point of departure, content and policy goals) adequately represent what is intended by theories of policy change and stability.

- The availability and comparability of data: Although knowledgeable that time series analysis derives its validity from the length of the series (the number of observations), the limited time frame was tied to the availability of the quantitative data, the lifespan of student aid programs, but also their comparability between the case studies.

- Time limitations: the thesis narrowed its selection to relevant legislative records and financial data. The thesis does not focus on tracing the process behind policy outputs (congressional talk, appropriation debates behind intergovernmental agreements).

As a small-N design, the aim of collecting evidence is not to generalize to larger number of countries but rather to 1) advance the knowledge about student aid policies through a more focused description, 2) better appreciate the case variability (across cases and in time), and 3) generalize from single policy events towards abstract theoretical relationship as suggested earlier by the adopted CON methodology (Bennett and George 2004; Blatter and Haverland 2012; Gerring 2007; Gerring and Cojocaru 2016).

1.6. The Arguments and Thesis Structure

In this chapter, I defined the policy of interest, reviewed the existing literature on the topic and identified its major limitations. In trying to fill in this literary void, I explained the rationale behind comparing the United States and Canada. Then, I clarified the adopted theoretical framework and the data collection process. The subsequent chapters are structured in the following manner.

Chapter 2 presents the adopted theoretical approach while collocating the thesis within the modern wave of the federal scholarship. The following three chapters answer the major research questions which build on one another. Chapter 3 clarifies *whether and how the united states and Canada engage both levels in the governance of their student* *aid policies*. It does so through events reconstruction, legislative analysis, and quantitative analysis of the collected data on public expenditures. The main argument is assessing the degree to which disintegrated federal structures matter in defining the intergovernmental student aid trajectories. Specifically, it assesses the degree of intrastateness, co-dependency and hierarchy between the national and subnational levels in both making-decisions and distributing resources over student aid. Chapter 4 complements the findings of chapter 3 by providing a thicker explanation to the trajectories through federal dynamics. As suggested by the adopted framework, dynamics represent the movements towards and away from the federal level, but also from the baseline structure. To solidify the link between actors' enticements and the existing institutions, I also analyze the incentives leading student aid to flow within the overarching federal dynamics. Specifically, incentives are defined through political and economic explanations. Chapter 5 validates the previous findings by adding another level of analysis through single national-subnational interactions. It selects four embedded case studies: New York, Alaska, Quebec, and Prince Edward Island. The questions asked are *whether the previous federal explanations can also be relevant for deviant cases? And whether variations are larger within-country or between-countries?* Chapter 6 provides a summary of all chapters' findings and focuses on their knowledge building, theory refining and policy applications.

All in all, in this thesis, I claim theoretically and demonstrate empirically that federal structures and dynamics matter in explaining the evolution of student aid policies in the United States and Canada. This is done while emphasizing the differences between the two countries, in their student aid trajectories and institutional designs.

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Appendix 1

Appendix 1.1

Table 1. 1 A Focal Summary of the Main Differences between the Case Studies		
	United States	**Canada**
Background conditions		
Structure[1]	50 states and 89,004 local units[2]	11 provinces and 3,600 municipal units[3]
Geography	9,833,517 sq km	9,984,670 sq km
Demography	326.6 million[4] people	37.06 million[5]
Unemployment rate[6]	3.9	5.9
GDP per capita[7]	57,588.54	42,348.95
Tax revenue[8]	25.9	32.7

1 Although local governments are relevant (more for the case of the United States than Canada), I consider them as embedded in the subnational level.
2 Retrieved from https://www.census.gov/newsroom/releases/archives/governments/cb12-161.html
3 Retrieved from http://www.clgf.org.uk/default/assets/File/Country_profiles/Canada.pdf
4 Data sources are the United States Census Bureau and the World Bank.
5 Data sources are StatCan, the United States Census Bureau and World Bank.
6 Total unemployment is calculated as a percentage of the total labour force. Data is retrieved from https://data.worldbank.org/indicator/sl.uem.totl.zs
7 Data source is the World bank (year 2016)
8 Tax revenues are calculated as a percentage of GDP, for the year 2016. Retrieved from: https://data.oecd.org/tax/tax-revenue.htm

Structural differences		
National unity	Strong	Fairly Strong (but threatened by unresolved problems)
State Government Constitutional States	Fairly weak	Fairly strong de jure, very strong de facto
Fiscal power structure	Power is diffused (Strong fiscal power of local governments)	Executive federalism
Fiscal federalism	Three-tiered unstructured	Two-tiered; decentralized
Federal Ideal-type	Balanced	Segmented
Political power structure	Separation of power (Weak party discipline)	Parliamentary system (Strong party discipline)
State influence on Federal policy-makers	Fairly weak	Strong
Federal-state intergovernmental transfers	Emphasis on conditional grants	Emphasis on unconditional grants
Federal-Interstate Equalization performance	Weak	Strong

Appendix 1.2: Data Sources

1. Archival laws and regulation Documents

The thesis builds its argument also on the analysis of laws and regulations obtained from archival documents. A purposefully sampled subset of federal laws and regulations had been collected to represent the 1945-2018 universe (Maxwell, 2005). The legal documents were sampled based on the following criteria:

- The period corresponding or leading up to the timeframe under study.
- Their subject matters: I used a keyword search using “higher education”, “student aid”, “financial aid”, “scholarship”, “loans”, “grants”, “tax credits”, “aide etudes” (English: aid studies).
- Levels of saliency: I focused on prominent policies using the following criteria: a) the amount spent on the underlying aid programs, b) the policy venue (corresponding to the keyword search).

Federal archived laws and regulations were taken from the *U.S Congress*, the *US Department of Education*’s websites, the *Justice website* and its archives as well as several national online libraries. State and provincial legislation were collected from their respective governmental websites and by contacting the states/provinces singularly.

2. Financial data

No longitudinal study to my knowledge compared student aid expenditures between the United States and Canada. This comes as no surprise, the inexistence of comparable quantitative data before the 90s prevented studying this variable directly[9]. Taking Canada, for example, when the work on this thesis started, only a study by the Higher Education Strategy Associates was available, presenting a thorough reconstruction of 10 years of student aid. Therefore, this research consisted of actively collecting data on student aid from different sources. I gathered data both by contacting primary sources, including the

[9] For example, analyzing students' aid expenditures was mostly done through higher education expenditures (under the assumption of a similar developmental direction) or by assessing students' aid through the number of enrollment (assessing policy outputs through their outcomes).

U.S Department of Education, the *CollegeBoard*, the *National Center for Education Statistics*, the *Government of Canada* and the *Council of Ministers of Education Canada*. I also communicated with the Ministries of Education and Finance of all 10 Canadian provinces along with addressing a data request to all 50 states in the United States. I resorted to secondary sources, mainly the *Higher Education Strategy Associates* (HESA) and the *National Association of State Student Grant and Aid Programs* (NASSGAP) to compare my data with their existing efforts. Finally, I consulted over 100 public accounts to double-check the validity of the collected data and impute the missing ones. Last, I controlled and assessed the data by consulting financial experts to correct and prepare the data for comparison. Matching and correcting the data allowed a reconstruction of:

- 40 years of federal and aggregate (total state) subnational expenditures (United States)
- 30 years of federal and disaggregate (by province) subnational expenditures (Canada)
- 17 years of federal/subnational expenditures (Alaska/New York)
- 17 years of federal/subnational expenditures (Quebec/Prince Edward Island)

3. Communication with bureaucrats

In order to better understand the complicated process of student aid administration, I contacted several bureaucrats at the state and provincial levels who are either involved or knowledgeable about subnational aid calculations. I also conducted informal interviews to gain insight into national-subnational interactions during the implementation of major student aid programs.

NOTES

[i] An annual analysis of Pell Grant data has found that over 600,000 students (2018) did not complete their federal FAFSA application, missing out on $2.6 billion. Retrieved from: https://www.nerdwallet.com/blog/2018-fafsa-study/

[ii] According to a recent study, nearly a million eligible students never received state aid because of underfunding. Retrieved from: http://hechingerreport.org/eligible-for-financial-aid-almost-one-third-of-students-never-get-it/

[iii] Lower Canada means the southern portion of present-day Québec, as in 1791, Britain divided the province of Quebec into Upper and Lower Canada.

[iv] Retrieved from https://appropriations.house.gov

[v] A clear example could be seen for highly targeting policies when territories- with the highest aboriginal population (e.g. Nunavut’s aboriginal population accounting for 86.3% of its total in 2011) also happen to be the poorest (e.g. Nunavut having lowest GDP in 2012). In such cases, the role of the federal level is inevitable.

[vi] The worry is that, if left to the subnational level, one subunit's tax decrease could drive another subunit to decrease them too, leading to a general underfunding of public goods and services.

[vii] The largest number of analyzed countries fell in cluster (3), and some liberal countries (e.g. the United Kingdom) fell in cluster (4).

[viii] The authors chose an index of de-commodification, defined as government spending and access to higher education and an index of stratification, defined as the internal structure and organization of the higher education system in 19 countries.

[ix] As estimated by OECD for the year 2008-2009. See Table B5.1 and B5.2. Retrieved from: http://dx.doi.org/10.1787/888932461199

[x] For example, resorting to a government trilemma proposed by Ansell, expenditures on education do drag other policy decisions about its cost and enrollment rates (Ansell 2010).

[xi] The authors' reported correlations between two different metrics: shares of total public spending, a proxy for government capacity to raise revenues and its prioritization towards the sector in question, and real expenditures per capita. The authors built their argument on Castles (1989) and Hega and Hokenmaier (2002), and refer to "trade-offs" which stand for a series of compromises including a trade-off in public expenditures, as well as compromises in government choices between enrollment, subsidization and control over the public cost. Second, based on the data provided to me by the authors, I failed to reproduce similar correlations except for a negative coefficient between real insurance (per capita) and education (as a percentage of total public spending). This replication also suggested serious infringements of the OLS application, the most relevant being the case of Sweden and the year 1990 as problematic outliers. Last, I found two structural breaks around 1975 and 1985, suggesting a change in the trend prior and after these years. Finally, as it was the main purpose of the replication, I extended the analysis to comprise data up to year 2016 and could notice that the trade-off clearly resolves around 1990.

[xii] Retrieved from http://www.casa-acae.com/agm

[xiii] See table 331.20. Retrieved from: https://nces.ed.gov/programs/digest/d16/tables/dt16_331.20.asp

[xiv] The authors' results show a high level of higher educational decommodification in social democratic countries, and a high level of stratification in the conservative ones. However, their findings of a high level of stratification in social democratic countries versus a low level of stratification in liberal countries, and a low level of decommodification in the conservative countries do not align with the expected welfare characteristics.

[xv] Initial empirical attempts mainly focused on affinities between public expenditures on education and social security programs. Hega and Hokenmaier (2002) analyzed 18

countries from 1960 to 1990 and provided negative correlations between expenditures in social security programs and education, more pronounced in liberal countries than conservative countries. The findings were interpreted as empirical proof for a trade-off between education and social security. On the other hand, although Pechar and Andres (2011) confirmed the same findings by Hega and Hokenmaier (2002), they claim that trade-offs reflect the priority and significance given to this sector, rather than being an indication for its inclusion or exclusion from welfare objectives.

[xvi] Although Pechar and Andres (2011) claim that trade-offs reflect the priority and significance given to the educational sector within the liberal model, rather than being an indication for its inclusion or exclusion from welfare objectives.

[xvii] It is retrieved as the Gross Domestic Product divided by midyear population. Data was taken from the World Bank and OECD National accounts. Definitions and problems related to the data correction using this metric can be retrieved from https://www.macrotrends.net/countries/CAN/canada/gdp-per-capita

[xviii] In Canada, the deficit reached a nearly double-digit in the 1990s, which was followed by deep budgetary cuts. The USA also faced a double-digit deficit after the 2008 financial crisis. The public deficit is defined as the fiscal position of government after accounting for capital expenditures.

[xix] The other traditions being: normative institutionalism, rational choice institutionalism, historical institutionalism, empirical institutionalism, sociological institutionalism, interest-representation institutionalism, and international institutionalism.

[xx] With the lifetime Learning Credit, the credit is 20% of the first $10,000 (of combined tuition and fees) up to $2,000 per year (not per student).

[xxi] The American Opportunity Credit covers 100% of the first $2,000 qualified tuition, required fees and qualified expenses, plus 25% of the next $2,000 for a maximum of $2,500 per student, per year. For example, a student paying 10,000 study fee will end up offsetting 2,000, and 25% of the other 2,000 ($500) and thus will pay $7,500 (10,000-

2000-500). Also, as 40% of the credit (in this example $2,500) is refundable, the eligible student might also receive $1,000 as a refund do he'd end up paying 8,500 and expecting 1,000 as a refund. Retrieved from https://www.efile.com/student-education-college-tuition-tax-credits-hope-life-time-learning-credit/.

[xxii] Non-refundable means that if the remaining portion of the credit goes under zero, then it is not refunded.

2 The theoretical Approach to Federalism and Policy Change

"*Researchers who apply CON are convinced that paradigms and theories are important in the academic world*"

(Blatter and Haverland 2012, 203)

2.1. Introduction

The thesis has two goals: A substantive and a theoretical. The second one aims to confront fundamental theories that can be equally valid for the study of student aid. The theoretical aim is to refine existing frameworks and bridge between competing paradigms (chap. 6).

In a highly cited work, Van De Ven and Poole (1995) argue that all policy change frameworks can find their origins within four core theories: Life-cycle, teleology, dialectic, evolution, extended by other authors to include a fifth core: chaos (Capano 2009). The authors argue that frameworks of policy change (exiting or novel ones) are nothing but a combination of these theories either: 1) in time (e.g. the interaction of life-cycle and dialectical motors through the model of Greiner (1997), or the interaction between teleological and evolutionary motors through the model of Tushman and Romanelli (1985); or 2) in space. These theories answer puzzling questions relevant to all policy researchers:

1) the number of units of analysis,

2) the degree of linearity,

3) the degree of novelty,

4) implicational relationships between statements (such as the necessity or the sufficiency of explanatory factors),

5) the need between having complex explanations or simple ones.

The thesis is a multi-level approach to student aid. By choosing more than one unit of analysis (i.e. longitudinal and multilevel), the research automatically gravitates towards theories of complexity. At the same time, establishing the other dimensions (degree of linearity, novelty, relations between statements and complex explanation) cannot be done without prior knowledge about what intergovernmental student aid looks like. To my exploratory advantage, the lack of existing descriptions and analytical frameworks of student aid allows me to address all five core theories freely, and depart from a confrontation between their applicability rather than assuming the relevance of any. However, the real complexity is that while some of these core theories can be complementary, others appear in contradiction, needing to unify their underlying paradigms.

In this chapter, I start by providing a reading of the five core theories as having evolved pari passu with the global scientific shift from reductionism towards theories of complexity and chaos. I do so to clarify the thesis position between process-driven and goal-driven change (section 2.2). Following this surmise, I bridge between neo-institutional and rational choice theory as two possible explanations for student aid (section 2.3). Last (section 2.4), I collocate the thesis within thick theories of federalism, in a modern research arena where the aforementioned institutional approach is highly applicable.

2.2. Policy Stability and Change: Between Process-Driven and Goal-Driven

Until around the 19th century, the predominant explanatory paradigm in scientific research was reductionism. According to it, events follow a linear process in which they are strictly related to one another, and their progression is pre-established. Knowledge of the whole could be reduced to single parts, and all one needed to do is to zoom into single constituents, understand the process governing them, to predict either the complex (the whole that he cannot see) or the future (whether the upcoming state or even the one far-fetched in time). Initially, public policy theories could be read from two simple reductionist approaches:

1. For example, life cycle theories are a family of theories which suggests that the motor of change inheres in the process. The developing entity "*has within it an underlying form, logic, program, or code that regulates the process of change and moves the entity from a given point of departure toward a subsequent end that is prefigured in the present state*" (Van de Ven and Poole 1995, 515). These theories describe a specific typology of development with the following features. It is:

    - unitary, with a progression that follows a single sequence of stages,
    - cumulative, where the acquisition of stages is accumulated in a specific order, and
    - conjunctive, where observed events are derived from the same underlying process.

2. Another equally relevant reductionist approach could be found within evolutionary theories. These latter describe a linear process as well - either through inter-generations or acquired within the same generation- suggesting a continuous and cumulative change. What makes it differ from life-cycle theories is that change is more dynamic as it results from variation, selection and retention. Thus, it is not always gradual as it can also be saltatory. This is mainly because the units of analysis are likely to be multiple.

Reductionist approaches proved to be useful when dealing with simple objects of study. Such explanations were parsimonious, making useful predictions about the average case, and encouraging high specificity. Life cycle approaches were highly disputed[i] even when scientific fields were in their embryonic forms. Also, external factors were not secondary within developmental theories[ii]. Even the conjunctive feature of species development was debated within early schools of Darwinism[iii]. However, the main caveat was that many phenomena were found to be hard to model linearly. For these reasons, the scientific interest in non-linear behaviour grew in importance[iv]. The transition between reductionism and complexity also happened as scientists realized the relevance of equifinality, as even different processes could lead to the same end.

3. Teleological theories were borderline between linearity and non-linearity, regularity and irregularity, as they admit the existence of both prescriptive (i.e. a pre-specified and predictable direction of events) and constructive (i.e. an unprecedented and unpredictable change of events) behaviour. The key contribution of these theories is that thy admitted the possibility of change as goal-driven. Similarly to evolutionary theories, change is dynamic. Differently from them, the observed behaviour allows both order in sequencing but also serendipity and equifinality. These theories appealed favourably to the study of organizationsv and also to political science and public policy scholars. On the linear side, even when public policies follow a stochastic sequencing, they often have some degree of sequential causal connections emerging as a result of the accumulation of events, giving them some linearity, sometimes called a ‘‘disconnected linearity’’ (Capano 2009). For example, policy coalitions can be read under a teleological approach as they permit a commonality of goal(s) and a high degree of consensus, with a likelihood of linearity. On the non-linear side, dynamic policy learning is often achieved through adaptation and interaction. Thus, allowing some form of nonlinearity, discontinuity, unpredictability from the past, and irregularity as well. It is within this linear/non-linear admission that explanatory frameworks such as punctuated equilibrium emerged, acknowledging both phases of equilibrium and evolution. It is also this very same ambivalence that renders the application of teleological theories quite challenging. A key obstacle for this thesis as well, it becomes imperative to understand whether the motor of change is in the finality (being it the end goal or the point of equilibrium), or the process that leads to this finality. Also, it becomes essential to specify whether the focus is still reductionist (a

focus on the linear segments constituting the behaviour) or holistic (on describing the whole behaviour).

The interest in non-linearity also drove the scientific research towards an interest in complexity, and both Dialectical and chaos theories brought a resolute holistic reading to change.

4. Dialectical theories describe a "*pluralistic world of colliding events, forces, or contradictory values that compete with each other for domination and control*" (Van de Ven and Poole 1995, 517). They differ from other theories in predicting the complexity of the behaviour from the complexity of driving forces, such as the balance of power between many opposing entities. They also consider more than one unit of analysis which is the source that creates the "*struggles and accommodations that maintain the status quo between oppositions*" (Van de Ven and Poole 1995, 517).

5. Chaos theories are a relatively novel approach to policy complexity portraying a behaviour where "c*onstructive and prescribed change motors may push the organization out of its equilibrium orbit and produce bifurcations or catastrophes, leading to chaotic patterns of organizational change*" (Van de Ven and Poole 1995, 535). Differently from dialectical theories, Chaos accepts simple explanations to model very complex systems, both linear and non-linear. The theory lies on the following propositions:

    - Even small changes in initial conditions can cause a highly multifarious and at times bifurcated systems, famously known as the "butterfly effect" (Capano 2009; Kiel and Elliott 1997; Vlad, Pascu, and Morariu 2010; Williams 1997; Wright and Shevchuk 1994)

    - That behaviour will be repetitive, sometimes referred to as "topological transitivity" (Kiel and Elliott 1997).

- That there will be possible points of equilibrium towards which the behaviour tends to go back to, also referred to as "the density of periodic points" (Kiel and Elliott 1997). Unlike the randomness generated by multi-factorial systems in dialectical theories, chaos follows a pattern that is attracted to an "ideal behaviour", called in mathematical terms “the strange attractor”, as a state towards which the system evolves.

What is also interesting about the chaotic behaviour is that it can either be bounded or unbounded. In the former case, some boundaries highly depend on initial conditions, within which the change is limited. In the latter case, the behaviour can assume infinite possibilities and appear hard to predict. In understanding this complex behaviour, chaos admits both a component of order and disorder.

By suggesting this reading to policy change across the changing scientific paradigms, I showed that the importance of change and stability differs according to the adopted approach. Life-cycle and evolutionary theories are strictly deterministic by previous states and also by internal processes, providing linearity to the sequencing of events. On the other hand, teleological, dialectic and chaos are more permitting of both linear and non-linear behaviors. In this thesis, I confront the two possibilities:

1. A linearity of student aid, determined by past behaviour and explained by institutions. In such case, explanations are more likely to be dynamic (evolutionary explanations) because of the interaction between units of analysis (i.e. levels of governments).

2. A non-linearity, in which explanations can either be multi-faceted (teleological and dialectical) or parsimonious and reduced to small differences in initial conditions (chaos).

This clarification is highly needed before confronting institutional theories that might appear contradictory at their core approach to change. As stated by Immergut, “*In order to explain institutional origins and development, an analyst must account both for* *institutional change and for institutional stability. That is, a convincing account of institutional change must contain within itself its negation, and yet somehow remain consistent*" (Immergut 2006, 243).

2.3. Bridging between Historical and Rational Choice Institutionalism:

In the 60s and 70s, political science strongly challenged the idea that governments are a representation of a sum of individual demands. The study of political institutions, or how political life is organized, became a valid explanation for such resilience, and public policies were seen as more subject to political institutions than responsive to individual interests (Immergut 2006). This focus reverbed across many institutional traditions.

- Historical institutionalism -the most prevalent tradition in contemporary studies- finds an explanation of political and policy outcomes in "*the way institutional organization of the polity and economy structures conflict to privilege some interests while demobilizing others*" (Hall and Taylor 1996, 937). In this tradition, institutions are defined as "*the formal and informal procedures, routines, norms and conventions embedded in the organizational structure of the polity or political economy*" (Hall and Taylor 1996, 938). The historical approach is used *"in the sense of looking at micro-political events, using standard historical methods, but without necessarily restricting oneself to any particular historical period, is a way of going into the 'black box' of politics to understand better the interactions of actors, preferences and institutions"* (Immergut 2006, 245). Historical institutionalism approached change as process-driven, where events contingency and timing were highly stressed (Pierson 2000, 2004). It saw novel phenomena as not drifting too far from past events and hence focused on linearity through the concept of "path-dependency" (Abbott 1992; Continuity, Streeck, W., & Thelen 2005; Pierson 2000, 2015; Thelen 1999, 2004). The Achilles' heel of this approach is that it became difficult to explain why institutions, given that they would endogenize individual preferences, could ever be subject to change (Immergut 2006).

- The second major tradition is rational choice institutionalism. This tradition is interested in understanding political behaviour based on the aggregation of rational individual choices. According to it, individuals make decisions in a goal-driven manner, but their interests are ultimately channelled through institutions. Hence, single individual decisions are predominated by stable structure-induced choices, remaining limited by the institutions within which they are made. At the same time, institutions are considered as comprehensive of these interests.

Institutional scholars have extensively analyzed these two major traditions, sometimes in attempts of emphasizing their contradicting paradigms, other times trying to bridge between the two. What is interesting is how they all cut close to the process-or-goal dilemma. One primary argument differentiating between historical and rational choice theories is in their consideration of preference formation as endogenous (historical institutional) and exogenous (rational choice) (Thelen 1999). As several authors have argued, this difference might be less rigid than what it seems like, since historical institutionalism also admits that interests and objectives are endogenous to the institutional process and cannot be separated from its institutional contexts (Thelen 1999; Zysman 1994). In this sense, exogenous preferences become a constitutive part of policy change. Katheleen Thelen also argues that rational choice emphasis on equilibrium[vi] does not mean disinterest in the process of political change. Rather, it considers it as "*involving a transition between equilibrium orders*" (Thelen 1999, 381). Even Peter Hall's approach to change has been highly applicable for both traditions because it distinguished between adjustments of policies and changes of goal (Hall 1993; Hall and Taylor 1996; Immergut 1998; Mahoney and Rueschemeyer 2012), which reflect a great extent the process-versus-goal driven conundrum. According to Hall (1993), a change could be classified as either:

- First-order, reflecting routine adjustments of policies -or a gradual change of instruments- where structures are expected to remain stable.

- Second-order, in which the structure changes through a complete reconfiguration of instruments but within the same policy goals.

- Third-order, where change happens through a complete shift of the policy goal.

In this thesis, I design an analytical architecture that bridges between historical and rational choice institutionalism. My interest in the historical development of intergovernmental student aid made it inevitable to adopt a historical institutional approach emphasizing on time-dependency and the importance of events' timing and sequencing. Specifically, I ask whether federal structures and dynamics, through the institutions that govern intergovernmental relations can explain the linearity of student aid. To modulate the structuralist and endogeneity of historical institutionalism, I integrate rational choice theory to explain how individual incentives influence student aid, and that by being channelled through political and economic institutions. Confronting the two traditions allows to formulate two theoretically competing hypotheses:

> *H.2.1 (Historical institutionalism): Federal structures and dynamics posit formal and informal rules that influence the sequencing of student aid events and influence its timing.*

> *H.2.2 (Rational choice institutionalism): Political and economic preferences towards student aid represent policy goals that are ultimately channeled through stable federal institutions comprehensive of actors' interests.*

2.4. Federalism and Policy Change

The term federalism has many definitions. All definitions converge towards a division of sovereignty between various governmental levels (which differentiates the federal system from the unitary or the confederal). However, they differ along with the justifications behind this division of sovereignty, and according to the influence of their adopted theoretical approach.

2.4.1. The Old Wave of Federalism:

I consider the old wave of federal studies as the period spanning from the early 20th century until the 90s. During this period, theoretical approaches to federalism were also reductionist and highly structuralist[vii]. Approaches were initially rooted in constitutional and legal studies defining federalism through the formal structure that assigned political power between the levels (Davis 1978; Elazar 1984; Friedrich 1968; Press 1963; Wheare 1963).

Among the contributions of this period, the uniqueness of the federal system was defined in its institutional robustness, contrasted with its combination of "shared rule", (since units have a common government) and regional "self-rule" (Elazar 1987). This peculiarity creates continuous intergovernmental interactions and possible political tensions, resembling tectonic shifts forming stable federal structures. Indeed, federalism was defined as "*the process of federalizing a political community, that is to say, the process by which several separate political communities enter into arrangements for working out solutions, adopting joint policies, and making joint decisions on joint problems, and conversely, also the process by which a unitary political community becomes differentiated into a federally organized whole. Federal relations are fluctuating relations in the very nature of things"* (Friedrich 1968, 7). Another relevant contribution was the efforts done in laying the ground for differentiating federal structures. Federal systems were considered as either dual or complex models. Under the former, we find the *layer-cake* typology which is hierarchical and closer to a unitary type of power relations, where the national level is at the top establishing relations with both the states and local governments. We also find the *coordinate-authority* type, which is less hierarchical as states are more autonomous, and the national level establishes little or no direct relation with local governments. Within the complex models, governmental levels are interlinked, and their responsibilities are defined as relatively interdependent spheres, where units act in an arm's length fashion. Complex models have different sub-varieties. *Interdependent, if* the national level designs the policies while the state and local governments implement them; *marble-cake,* where designing and implementing overlap between the levels, and *independent spheres* where design and implementation are coordinated under an arm's length cooperation (Shah 2007).

Although these contributions were highly insightful, they remained dominated by the structural approach, keeping policy change as majorly process-driven. At the same time, while the descriptive frameworks provided rich information on federal varieties, systematic comparative approaches were rare (Lépine 2012) impeding any significant differentiation between the United States and Canada.

During this period, federalism was also highly studied within the economic discipline, to specify the level better apt for collecting taxes and redistributing resources within the national economy. During the 50s and 60s, the First Generation Theory (FGT) laid the foundation for modern fiscal federalism by arguing that decentralized goods and services can better serve local preferences, allowing a limitation of market failures (Arrow 1969; Musgrave 1959; Musgrave and Musgrave 1989; Samuelson 1954, 1955). At the same time, the approach recognized limits to decentralisation, such as the unclear definition of the geographical scope of jurisdictions and the problem of fiscal spillovers among the subunits[viii]. Hence, even when policies are highly decentralised, the central level was still needed to hold roles of macro-economic stabilization and income redistributions[ix]. The framework presented severe limitations. First, while it brought about a goal-driven approach to federalism; it black-boxed the political process and assumed that governments are benevolent; or at best, only pressured by the electorates. Moreover, it presented several paradoxes. One example is the absurdity of thinking that, the national level will not hold the information in decentralised contexts (information asymmetry) and, at the same time, decentralisation makes the central level more suitable to redistribute resources equally among the subunits. The last shortcoming is that it saw centralisation and decentralisation as contrasting economic processes, resembling a thug of war to choose the most efficient one, a view that will subsequently become more nuanced.

2.4.2. The Modern Wave of Federalism: Towards a Political-Economic Approach

The interest in federal studies was renewed in the 90s under both empirical and theoretical enticements. There remains a mere fact that 40% of the population lives in a federal country[x] and that intergovernmental dependencies are becoming more frequent, such as multi-level governance in the European model, with the dominance of novel vertical monetarist economic strategies, the multi-level political reconfigurations in Iraq…etc. Relevant to this thesis, the resurgence of federal studies in the 90s will bring two major contributions. During the last decades, federalism benefitted from the fertile theoretical ground, namely the growing interest in political institutionalism as well as the economic revision of the FGT. This allowed revisiting early federal studies under more empirical and systematic comparative approaches while converging political and economic justifications of federalism.

i. Varieties of Federal Systems:

Under the federal-neo institutional marriage, a specification of different types of federal systems became contingent on the nature of units, their history and "essence" (Colino 2010). In *New Directions in Federalism Studies*, César Colino (2010) presented a comparative framework to study federal systems according to two main attributes.

The first attribute (dimension.1, table 2.1) is defined as the formal structure of federal governments, resembling the earlier distinctions between dual and complex models. This dimension represents the degree of sharing responsibilities while considering the autonomy of the units. Hence, rather than asking whether powers are divided in a dual or complex manner, this framework helped formulate a finer question of *which degree are specific decision-making, spending or taxing functions assigned to specific levels of governments*. The major contribution of this framework is that it operationalizes the construct as a continuum between integration and disintegration. Integration/disintegration was defined through the degree of intrastateness, the level of codependency, and hierarchy; all redefined in this thesis within the context of vertical intergovernmental relations.

- Intrastateness/Interstateness: This variable is used to represents the degree of subnational participation in national decision making, specifying whether power and responsibilities are encapsulated within the subunits, or exist outside of them as well. It can be assessed through the constitutional design which specifies the bearers of legal obligations towards student aid programs and specifically, whether these powers are functional or sectoral; exclusive or shared, and whether their distribution is specified or residual.

- Codependency: Codependency represents the degree by which levels depend on one another in making decisions and distributing resources.

- Hierarchy: Hierarchy represents the structuring of rule-making powers between the levels of government. For example, the hierarchy and authority of the federal level are reflected through the clarity of federal decisions and rules. They specify whether there are conditions attached to them, or whether any discretion is left to the subnational level.

The second attribution (dimension.2, table 2.1) defines the interactions between the governmental levels, allowed under processes that can preserve (are congruent with) or challenge (are incongruent with) the afore-described structures (Colino 2010). Federal systems can be categorized according to:

- A predominant centripetal force: a term borrowed from physicsxi to describe a force that pulls political and/or economic powers to the central level.

- A predominant centrifugal force, representing a center fleeing force. If such force is in action, then power is taken away from the centre in order to achieve diversity within that unity and to strengthen the power of the subunits (Colino 2010)(Erk 2007)(Erk et al. 2010)(Núria Bosch 2008)(Oates 1999).

Table 2. 1 Varieties of federalism according to the formal framework and federal relations, based on Cesar Colino (2010, 22)			
	Dimension 1. Formal framework		
		Disintegrated	Integrated
Dimension 2. Federal relations	Centripetal	Balanced	Unitary
	Centrifugal	Segmented	Accommodation

Along these two dimensions, the author categorized federal systems within four ideal-types. Relevant to the case study selection:

- The United States is represented by the "balanced" category. This ideal-type operates with a disintegrated formal framework and a dominating centripetal force (table 2.1). Disintegration has been intended by the author to represent the typical origin of the federalization process. Power contention was initially embedded in the dual sovereignty between congress and the states[xii]. The intention was to remove power from the federal government and give more of it to the states. However, this latter had very few arenas where they were exclusively allowed to regulate, due to a lack of specificity but also to the conflict between legislative and judicial branches. Thus, paradoxically, the country ended up with a strong central government, as congress was the one specifying state laws. Hence, so as not to challenge the institutional equilibrium reached between the national and subnational units, power is often directed towards the centre, allowing the growth of strong national policies.

- The Canadian Case lied within the "segmented" type. It is characterized by a disintegrated structure and a predominant centrifugal force (table 2.1). The disintegration, as defined by Colino, is mainly due to the existence of distinct cultural communities. The Canadian federation rationale lied in the survival of its unity, the cultural affirmation of its French and English diversities, the autonomy of its subunits and their cooperation. All had to be reflected in its constitutional design. The federal system in Canada started opposite to the United States. The initial intent of the federal system was giving more power to the central government (Constitution of 1867). Power was assigned in a mutually exclusive manner, meaning that if a unit entrusted with a specific power does not act, the power goes unregulated. But while the idea was to limit provinces to specified powers, giving the central government both entrusted and residuary powers, this same specificity of powers ended up protecting provinces more[xiii]. Furthermore, the survival of the Canadian unity had always been contingent upon the cultural affirmation of both its distinct cultural communities along with its French and English components and conflict mainly rose on a territorial front. Hence, to maintain this status quo, power often flees from the centre, and federal relations are governed by national "encouragements" of voluntary cooperation rather than an imposition of national policies.

The structure and exchange of power between the national and subnational levels is central to the establishment of federal countries but also highly influential on their policy. Under Colino's description (2010), the United States and Canada are expected to design policies in accordance to a disintegrated relation between the national and subnational level, and under a predominant centripetal force in the United States and a centrifugal one in Canada.

Nevertheless, two major contributions by the modern wave of federalism can alter these theoretical expectations. The first is related to the relevance of the central government in both countries. Federal studies have long been questioning whether the divisions of political and economic powers can lead to the obsolescence of the central level. Several scholars warned against a weakening of state governments due to the unceasing devolution of political power (Laski 2005; Pressman and Wildavsky 1984) threatening a loss of their legitimacy (Habermas 1976). Differently, modern state approaches are observing perseverance in the role of central governments, arguing that it is unlikely to lose the hierarchical governance over major policies (Capano 2011; Goetz 2008; Héritier and Lehmkuhl 2008; Hill and Lynn 2005). Therefore, while the United States and Canada are expected to differ in their dynamics, it is also likely that the two countries will preserve a central role over student aid policies. The second challenging contribution helps us identify whether centralism and decentralism achieve what they were designed to achieve. The two processes have both political and economic advantages and disadvantages; nevertheless, recent contributions started seeing contradictions and blurred lines between these two (Weiler 1990). For example, while describing education governance in Norway and British Columbia (Canada), Karlsen saw more to decentralization than meets the eyes. The author argued that decentralisation is not always pushed from below, can also be driven by standardization (similarly to centralisation), does not always mean a shift of power from a higher to a lower level and can even have a legitimizing function for the central level. The author proposed the term "*decentralized-centralism*" to describe that the two processes can achieve the same functions, co-exit within the same structure and/or alternate in time (Karlsen 2000). Consequently, the centrifugal/centripetal hypothesis could be loosened by expecting that the two forces can direct student aid policies.

ii. Second Generation Theory of Fiscal Federalism:

The second major theoretical advance was due to the revision of the FGT, leading to unite the political and economic justifications under a single approach. The Second Generation Theory of fiscal federalism (SGT) focused on understanding the fiscal incentives between the levels. Under this theory, the intergovernmental relationship became a classic story of sticks and carrots. First, due to the problem of soft budget constraints, where subunits can rely heavily on the central level to the point of leading local programs into inefficiency and dragging the economic performance down (Mckinnon 1997; Oates 2005; Rodden 2000; Weingast 1995). **Indeed, the literature had warned us against a moral hazard as decentralization can "*create incentives for governments to operate in an irresponsible manner under the expectation that the central government will come to the rescue, if necessary, should an adverse fiscal outcome materialize*" (Aldasoro and Seiferling 2014, 4:5). This suggests that subunits can avoid the costs related to specific policies which can be influenced by their expectation of a federal bailout. In other words, knowing that the federal level can increase its expenditures incentivizes subunits to fall short on their**

responsibilities. Under this line of investigation, some authors had even elaborated theoretical approaches based on game-theoretic concepts to explain all possible subnational decisions during this bailout game (Wildasin, 1997, 2004).

Second, the previously black-boxed political process became now relevant in its interaction with economic institutions, breaking away from the idea that governments are mere benevolent givers. As FGT assumed public officials to seek a common good, the SGT saw that each has his objective, which is often reconciled through institutions that constrain single individual interests. In doing so, this theory aligns with the rational choice and adds an explanatory relevance to this study of federal structures and dynamics. Not only these latter assign the locus of power between the levels, they also channel these interests.

2.5. Conclusion

At its core, the thesis argues that federalism- intended as political and economic institutions- matters for policy change. The thesis also strives to demonstrate how it matters and why. Because frameworks are in the eye of the beholder, the chapter had to first clarify the assumptions behind process-driven and goal-driven approaches, as an important step needed before tailoring framework that fits student aid. The thesis is then collocated within complex approaches to policy change, testing both the possibility of linearity and non-linearity within the same trajectory.

Only then, the thesis was able to bridge between two plausible explanations to student aid (historical and rational choice institutionalism) without seeming self-contradictory. The first institutional tradition accounts for the linear, process-driven, path-dependent evolution where change depends on events sequencing and timing. In this thesis, federal structures (chapter 3) and dynamics (chapter 4), will provide the formal and informal contracts that govern intergovernmental relations and test their impact on student aid in the long run. Differently, rational choice theory admits change as goal-driven, non-linearity and equifinality, and sees interest as channelled through institutions.

In chapter 4 and 5, fiscal and political interests will be tested as possible explanations for student aid change and whether this latter was kept within the institutional boundaries.

This chapter's review of the theoretical discourse suggested that bridging the two institutional traditions makes more sense than what is sometimes suggested. When it comes to student aid, historical institutions (federal structures and dynamics) are likely to provide the conditions under which fiscal and political interests towards this policy will stabilize. At the same time, it is the fiscal and political incentives that, in turn, challenge or reform the existing institutions. As stated by a rational theorist while addressing fiscal federal change: "*the game of fiscal federalism can and does change, and antecedent factors like economic and ethnic geography probably help structure the conditions under which fiscal structures and patterns of party organization are stable. Nevertheless, once they take shape, we have seen that these institutions can be quite stable over long periods – sometimes frustratingly so – with predictable effects on the credibility of the central government's no-bailout commitment*" (Rodden, 2005).

Last, the thesis also positions itself within what it labelled as the "modern wave of federalism", for two major advantages. The first is to contribute to the current interest in understanding and analyzing federal varieties as different institutional recipes for policy-making. The second is to address the concern about the perils of decentralization, as this latter affects single policies and then translates to the overall fiscal health of subunits.

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NOTES

[i] For example, in Psychology, non-hierarchical developmental scholars often contrasted early studies in human development (Langer et al 1990; Levinson 1986).

[ii] For example, Psychologist Jean Piaget argued in his action-oriented approach that external objects are essential for normal cognitive development.

[iii] For example, since the concept of what is "fit" was itself continuously changing, English Darwinism argued for a stable underlying process while American Darwinism argued for an unstable one.

[iv] This attention was also enabled by the possibility of simulating seasonal behaviour (i.e. a systematic alternation of similar changes) with the introduction of computer modelling since WWII.

[v] Examples are the study of vicious circles in organizations (Masuch 1985) and in group processes (McGrath and Kelly 1986) as cited in (Van de Ven and Poole 1995, 535).

[vi] In reality, an equilibrium is not a necessary characteristic of rational choice behaviour, and even different points of equilibria could exist (Levi 2009).

[vii] Not only the reductionist approach was evident through the emphasis on political institutions, but it also transcended into a social one in which federal systems were seen as fractalized (e.g. See Kaleidoscopic Federalism, in Macdonald 2005).

[viii] The overflowing or spreading of benefits outside of the subunit was a negative outcome of decentralization.

[ix.] These functions include the allocation of resources, the redistribution of tax and income and the macro-economic stabilization of the economy.

[x] Data taken from the Forum of Federations, retrieved from: http://www.forumfed.org/countries/.

[xi] In physics, the term means "*a force by which bodies are drawn from all sides are impelled, or in any way tend, toward a point as to a center*" (Cohen et al 1999, 102).

[xii] At least as implied by the un-amended constitution and by the 10th amendment.

[xiii] Few exception also occurred, such as the major revision of the Canadian constitution in 1982 which gave the federal level important obligations including the one to "*ensure that provincial governments have sufficient revenues to provide reasonably comparable levels of public service*s" (Subsection 36 (2) of the Constitution Act, 1982).

3 The Intergovernmental Structure of Student Aid Policies

3.1. Introduction

Little is known about how student aid policies are structured within multi-level systems. Worse, when **simply assumed** as decentralized, which is the case for the United States and Canada, the relevance of the central level as well as intergovernmental interactions over this policy are often dismissed. In the meantime, the United States' federal budget has always contributed heavily to state student aid programs; and the removal of a significant component of Canadian federal student aid (i.e. tax credits) has caused the termination **of the same programs at the level of** many provinces (Canada, Dept of Finance, 2016). Such examples make it hard to conceive governmental levels as insulated when dealing with student aid policies.

Across different policy sectors, empirical findings are continuously demonstrating "how" and "why" federal institutions matter (Braun 2000; Montpetit 2002; Montpetit et al. 2003). Consequently, federal scholars are stressing the need to study the impact of federal configurations on the policy process, from design to implementation. This chapter takes such a proposition seriously and focuses on federal structures by analyzing their impact on intergovernmental student aid trajectories.

3.2. Research questions

There are many ways a federal structure can be described. If I can use an analogy, federal structures approximate those of extended families. To a certain extent, the cohesiveness/dividedness between family members resemble the theoretically suggested integration/disintegration between governmental levels (chapter 2). In the former, a family structure can be understood by looking at the isolation of family units in their rule-making, if members depend on one another when they make decisions and/or spend their money; who leads and who follows. Correspondingly, the theoretical framework adopted in by Colino (2010) defines a federal structure according to the intrastateness of the constitutional design, the co-dependency of the decision-making and resources and the hierarchy between the governmental levels (chapter 2). In this chapter, I ask *whether federal structures have an impact on intergovernmental student aid* by positing the following research questions:

RQ. 3.1 whether/to which degree is the federal level involved in subnational decision-making over student aid (intrastateness and hierarchy)?

RQ. 3.2 whether/to which degree the national and subnational levels are codependent in their decision making and resource distribution over student aid (co-dependency and hierarchy)?

The adopted comparative methodology (i.e. longitudinal and between the United States and Canada) allows answering complementary questions of:

RQ. 3.3 whether/how intergovernmental relations have changed over time?
RQ. 3.4 whether/how they differed between two federal systems considered similar in their structures?

3.3. Hypotheses

The research choice of comparing the United States with Canada have rested upon two competing views. On the one hand, the theoretical framework suggested by Colino (2010) considers both ideal-types as a result of the same disintegrated structure (chapter 2). To the untrained eye, the two counties indeed exhibit a division of competencies between their federal and sub-federal governments. In both countries, disintegration manifests as states and provinces are able to design and implement a considerable number of policies without the interference (or the need) of the federal level. However, it does not necessarily mean that the two levels are entirely disconnected, that they cannot engage in intergovernmental coordination if politically or economically viable; or that the two countries would be similarly disintegrated.

To the trained eye, context-specific studies have always acknowledged substantial differences between the two countries' structures. When it comes to the hierarchy of power, fragmentation is -in theory- more at the core of the United States than it is for Canada. In the former, federalism has been built upon a shattering between orders of power and levels of government. This principle is apparent within institutions (i.e. bicameral legislature and separated appropriation functions within the legislative) and among levels (e.g. shared power between state governors and legislators). Differently, the separation of power in Canada is not as strong. With regards to the separation of functions, the United States' fragmentation manifests as both levels can regulate the same policy. Contrarily, Canada has been described under two contradicting views. The first sees all essential areas of policy as cutting across various jurisdictional levels (Simeon 1980). Consequently, this notion expects an overlap in the authorities between Canadian levels (Wright 1982). The alternative view considers Canada as a jurisdictional federation since full competencies in specific sectors are given to each level of government to the exclusion of the other (e.g. Montpetit et al. 2003). In line with this view, governing levels were described as "parallel" rather than "interlocking" (Painter 1998). Consequently, federal studies are more and more abandoning the dual model as similarly representative of both the United States and Canada and admitting different configurations among their federal structures.

Taken together, these fundamental nuances suggest a difference between the two countries relevant to understand the complexity of their federal structures and the tension between their levels. For example, while provinces (Canada) are more insulated in their legislations than states (United States); they are less insulated from the national judicial power (Field 2006, 113), and in their policy dependence, creating "*contradictory pressures of political independence with policy interdependence*" (Simeon 1980, 9). Hence, in this chapter, **not only I investigate whether are intergrated or disintegrated, I also** investigate the degree of integration/disintegration so as to further test for differences between the two federal structures (RQ 3.1 and 3.2). With respect to the three investigated dimensions (i.e. intrastateness, codependency and hierarchy), the CON methodology allows to deduce hypotheses from the adopted theoretical framework and compare it to alternative explanations. Therefore, working hypotheses have been formulated as follows:

H. 3.1 (federal ideal-type framework): In both the United States and Canada, student aid will be designed within the limits of the intrastate structures; the codependency of decision-making and resources, as well as the hierarchy, will be weak.

H 3.2 (alternative): Intrastateness will be higher in the United States compared to Canada, the codependency of resources will be higher in Canada, while intergovernmental decision-making rules will be more integrated in the case of the United States compared to Canada.

3.4. Methodology

To test these hypotheses and cross-validate their findings, I use two methods. The qualitative approach examines the constitution and around 50 federal laws and regulations spanning from the 1930s until 2018 (Appendix 3.1, Tables 3.1 and 3.2). The underlying assumption is that governmental levels within federal contexts choose the instruments that are reflective of the relations between them, and their policy areas. Indeed, the choice of specific instruments has been argued to be induced, at least partially, by the institutional context (Capano and Lippi 2017). Furthermore, because structures are likely to present an environment of stability for the policy, I hypothesize that policy change is expected to occur under a gradual change of policy instruments (Hall 1993). Therefore, the aforementioned legal documents serve to assess the integration/disintegration and also the linearity of the policy trajectory. **Another instrument to assess the degree** of integration/disintegration is through public financial contributions, an attention is given to the federal fiscal discretion, which is evaluated through the following dimensions:

1. **Conditional/Unconditional federal grants**: When allocating federal grants, the federal level can specify the conditions that the beneficiaries (students or subunits) should abide by. This modality is an expression of high federal discretion. It is

often driven by the need to ascertain the implementation of federal programs. Grants can also be unconditional, with loose restrictions. In such a case, they can be driven by an equalizing goal between the subunits. Conditional and unconditional grants can also take different forms (Appendix 3.2, Table 3.7).

2. **Matching/Non-matching federal grants**: Under a matching modality, the federal level can match the same amount spent by the subunits or require them to do so. Matching often reflects a high federal discretion as money is given contingent upon reaching a specific policy goal.

3. **Direct/Indirect modality of grant disbursement**: federal money can go either through an indirect route where it is first given to the state or provincial government before being reallocated to the beneficiaries (student or university); or a direct route where federal level establishes direct links with the beneficiaries.

These dimensions, as well as their relative grant typologies, reflect different degrees of federal control (table 3.1). For example, formula-project grants (conditional) specify, through a formula, the conditions on how to use federal money; leaving few rooms for subnational discretion. Matching grants also exercise a level of federal control compared to non-matching ones. Also, when money is first passed on to state/provincial actors (indirect), federal discretion over the subunits is expected to be high, and a degree of integration between the governmental levels is likely to be created. On the other end, General Revenue Sharing (unconditional) does not limit the subunits as long as the money is spent on activities that are not explicitly prohibited by the federal level.

The quantitative approach has two goals. Before this study, no representation of student aid that is macro, longitudinal and contrasting the two countries existed. Thus, the first goal is to describe student aid expenditures longitudinally by deriving as much information as possible from the data. In this phase, I use traditional methods of time series decomposition and tests of stationarity to describe but also adjust the data for the next statistical analyses (Goal 1, table 3.2). The second goal is to investigate any

Table 3. 1 A classification of grant typologies according to the degree of federal discretion			
	The funding's discretion of the federal level on sub-federal units		
Financial instruments	Low	Medium	High
Conditional/unconditional	**General Revenue Sharing**	Block grant Formula project	Project Categorical grants
Matched/non-matched	Non-matching		Matching
Direct/indirect	Direct		Indirect
Source: Author's elaboration based on Colino (2010), ACIR (1978, 7) and Dilger and Cecire (2015, 3).			

substantial and longitudinal relationship between the two governmental levels. To achieve this goal, I resort to more advanced time series analysis to model and extrapolate significant statistics and information about the data. The primary research goal is to quantify the relationship between the two levels of government to assess the degree of their financial co-dependency. To do so, I employ two tests. The first assesses whether

Table 3. 2 The Methodology followed by the Quantitative Analysis		
Goals	Steps	Findings
Goal 1: Preparing the data for time series analysis	1) Normalizing the data	Appendix 3.3
	2) Ascertaining the stationarity of the data	Appendix 3.4
Goal 2: Finding relationships between the various governmental levels	3) Time series modelling	Appendix 3.5
	4) Running co-integration tests	Table 3.3
	5) Running cross-correlation tests	Table 3.4

the two levels follow the same long-run path in their spending over student aid (Step **4**. co-integration). The second test measures the extent to which the two levels of government fluctuate together (Step 5. cross-correlation). Last, differently from cross-sectional analyses, time series also allows determining how each level of government cross-correlates with the other level in an earlier or later point in time (also called lead/lag relationships).

This chapter benefits from the quantitative approach in order to investigate long-run relationships between the governmental levels, but also to cross-validate the qualitative findings while accounting for intergovernmental differences between the two countries (RQ 3.3, 3.4). There are important notes to bear in mind while reading the quantitative results. One of the basic critics behind "Correlating" public expenditures is that these latter are inevitably related, and hence these tests are pointless. Statisticians have long been knowledgeable that correlations are descriptive and not inferential (Yule, 1926); this is why time-series analyses are often used to ameliorate such research limitations (e.g. by modelling the data, step 3). These analyses have consequently been used to determine significant relationships between public expenditures (e.g. Hirnissa et al. 2009). Thus, the results should be interpreted under the universally accepted limitations of quantitative analyses: First, they are representative of the average case. Second, knowledgeable that student aid change is relative to its demand, controlling for such variable was only circumvented when both (a) the average of federal contributions and (b) the average of all states/provinces responded to the same number of students. Last, results should not be interpreted by equaling the amount of federal and sub-federal expenditures, unless in relation to the overall expenditures. Consequently, it is equally important to note that based on the limitations of statistical analyses, the chapter's conclusions are not based solely on the statistical results.

3.5. How the Division of Jurisdiction Matters for Student Aid

3.5.1. Finding: Escaping the Intrastateness of Education Policies

Contrary to the general belief, in both the United States and Canada, student aid is not constitutionally defined under the subnational jurisdiction. The U.S constitution does not make a statement about higher education (or student aid). What is often interpreted as such is its 10th amendment as "*the powers not delegated to the United States by the Constitution ... are reserved to the States respectively*" (U.S. Const. amend. X). Accordingly, student aid would have then been defined under the jurisdiction of the states. However, since the Reconstruction era of the United States (1865-1877), ratifications of the 14th and 15th amendments gave congress a hand on states through its pre-emption power (U.S. Const. amend. XIV, XV). Under this doctrine, the federal is considered a "higher" level of government that can eliminate or reduce the authority of the "lower" level over specific policy issues. This growing role was illustrated by a move from 29 statutes enacted prior to 1900 to 589 in 2008 (Zimmerman 2008). The federal role over education also became institutionalized during the establishment of the cabinet-level Department of Education (DoED) in the 1980s. Since then, the DoED has been involved during the appropriations of student aid budgeting, deciding "how" and "how much" money should be allocated to the states. Differently from the United States, in Canada, the solution to the intergovernmental bargain around education was to give plenary power to the provinces. The 1867 British North America Act clearly defined education under provincial jurisdiction, stating that *"In and for each Province the Legislature may exclusively make Laws in relation to Education"*(Constitution Act, 1867)[i]. However, the constitution gave the federal parliament all residuary powers that are not at the hands of the provinces, and veto power over provincial legislation, leaving a backdoor for novel policies such as student aid to engage the federal level. Also, Compared to the United States, Canada lacks a representation of educational affairs at the federal level.

3.5.2. Finding: Different degrees of Codependency and Hierarchy of decision-making and resources

In both the United States and Canada, the 1930s brought about an intergovernmental nature to student aid under different starting conditions. The aftermaths of the depression years constituted a period of high federal interest towards social policies in both countries (e.g. the Social Security Act of 1935 (USA), the Unemployment Insurance Act in 1940 (Canada)). However, differently from the United States, the role of Canadian provinces over welfare programs preceded their U.S counterpart. Since the begining of the 20th century[ii], significant provincial efforts covered the workmen's compensation[iii], allowances to single-parent families, and child-care benefits. In both countries, the initial federal programs directed towards student aid were matched with modest subnational initiatives (e.g. Regents College Scholarship Program in New York, established in 1913). Still, the had to be equally justified. Initially, student aid was justified in its intersection with unemployment policies. The United States provided money to students through the National Youth Administration program, and Canada run the Dominion-Provincial Youth Program (1937), the first form of federal loans towards students as an encouragement of vocational training[iv]. Few other programs were given to aboriginal students whose function remained under the federal level[v]. Not only the interest in welfare policies positioned the countries under different starting conditions, but the modality of disbursement did too. Differently from the United States, the Dominion-Provincial Youth program was already allowing a federal-provincial cost-sharing modality.

At the end of WWII, the intergovernmental trajectory of student aid will be influenced by two major federal contributions: the U.S G.I Bill (Servicemen's Readjustment Act of 1944) and the Canadian Veterans Rehabilitation Act (1945). First, they brought an unprecedented- albeit unequal- level of federal generosity. Planned for the returning veterans as a substitution to pension benefits[vi], the former gave students up to $1,440 per year above tuition[vii] (the equivalent today of receiving $20,000 per year above tuition fees). In the latter, funding was given to universities in the form of free tuition with an additional $150 per veteran (the equivalent today of $2000). Second, these programs had unparalleled coverage, with the G.I. bill initially covering 7.8 million veterans, and the Canadian Veterans Rehabilitation Act covering 50,000 veterans. Most importantly, both programs legitimized the federal role over student aid and will influence its continuity.

The period between the late 50s to the late 60s marked an expansion of the federal role at the expense of states and provinces. After the USA-Soviet space race placed education at the centre of the political agenda, establishing the first federally guaranteed student loans[viii] (National Defense Education Act of 1958), the mid-60s would mark a period of higher institutionalization of the federal role. The passage of the Higher Education Act of 1965 (HEA65) was described, at the time, as an unprecedented overreach of central power over higher education (Adkins 1968; Boyd 1970; Henry 1966). The act will then become responsible for an extensive decision and rule-making over student aid matters. Specifically, title IV of this act[ix] defines federal student aid programs, sets their amount[x], the conditions for their eligibility[xi] and regulates the behaviour of their beneficiaries. Growing federal functions were also manifested through the establishment of direct links with the beneficiaries. Besides, universities also became subject to a direct federal evaluation (e.g. The Student Loan Reconciliation Amendments of 1989)[xii]. The discretion of the federal level benefitted from HEA65 as well as other legislation (e.g. The Economic Opportunity Act in 1964) to establish federal-state relations, all while keeping an upper hand over federal programs. For example, the Federal Family Education Loan insured the states (and private entities) against defaulted loans, allowed them to keep interests at a federally mandated level and covered many of their administrative costs. This action was a big encouragement for states and also nonprofit private institutions and organizations to *"establish adequate loan insurance programs for students in eligible institutions*" (as stated in Art. B of the HEA 1965). Under the same line of state encouragements, beneficiary states were required to form commissions (1202 state commissions) to empower their fiscal efficiency (Higher Education Amendments, 1972). Cost-sharing remained a practice majorly directed to institutions rather than state governments[xiii]. During the same period, the Canadian federal level also managed to establish an important federal program in 1964; namely the Canada Student Loan Program (CSLP) (Student Loans Act of 1964). Differently from the United States, the federal role was initially limited to the guarantee of loans[xiv], and was opposed by Quebec, Nunavut and the Northwest Territories who opted out from the program (chapter 4). Since then, the Act establishing the program was replaced[xv], delegating some of its administrative responsibilities to the banks[xvi]. Initially, Loans were distributed to provinces based on the proportion of the national total of 19-24 years old (formula). There was also a federal cap, to limit the federal intrusion[xvii]. Therefore, while decision-making rules were becoming hierarchical in the United States, the Canadian decision-making over student aid was still highly disintegrated.

Since the 1960s, intergovernmental student aid seem to have followed a stable path. In the United States, the federal hierarchy continued to expand. During this period, the federal level engaged the states in the implementation of its programs through conditional fund-matching. Programs authorized under the federal HEA65 -such as the *Federal Supplemental Education Opportunity Grants* (FSEOG) (1965)[xviii], and *the State Student Incentive Grant (SSIG)* (1972)[xix], later renamed the *Leveraging Educational Assistance*

Partnership (LEAP) (1973)- were all under a matching-scheme involving the contribution of the states. Taking LEAP for an illustration, the federal match was given through a formula where each state received funds based on the number of eligible students, relative to the total of all states (Higher Education Act of 1965, as amended[xx]). There were conditions on states' contributions which had to be no less than a one-to-one basis from their resources. The agreement also required the "maintenance of effort" principle, which guarantees that the state level's funding increases continuously. States were asked to administer federal funds, and these latter were provided under the requirements of reporting, auditing, and keeping records of awards (Higher Education Act of 1965, as Amended in 1986). Since the 1980s as well, the DoED will taken on further functions such as collecting defaulted direct student loans[xxi] (Higher Education Technical Amendments of the Higher Education Act of 1965); and servicing the federal student loans[xxii] along with receiving students' complaints about state (and private) loans as well. By contrast, the Canadian federal was more intermittent and had a weaker discretion over the provinces. Except for the mid-70s work-study efforts, along with the Special Opportunities Grant[xxiii], the federal role was very limited until 1998, when the Canada Millennium Scholarships (CMS) were established (The Budget Implementation Act of 1998). The program consisted of a federal endowment of about $2.5 billion to provide both need and merit-based programs[xxiv], lasting until 2010[xxv] (Canada, Department of Finance,1998). The CMS were given under an unconditional, non-matching and indirect modality. They had no significant constraints on how to be spent or requirements to be matched. In this period, while the CMS were addressing non-repayable solutions, the federal level also tackled repayable programs by authorizing the federal tax relief, alleviating students from interest payments on loans (Canada, Department of Finance, 1999). Consequently, the federal hierarchy continued to strengthen in the United States, creating a relationship in their decision and rule-making; while in Canada the federal role remained intermittent and non-institutionalized.

When it comes to the relationship between resources, student aid appear to have created substantial links between the levels' resources. The United States resources are managed under both disintegrated and integrated programs. The disbursement of major federal grant programs (e.g. grants for veterans and their families, Pell Grants) was directed to the educational institutions, through a formula, indexed to the growth of students' numbers and their needs. Under this direct modality, no formula was used for state allocations (i.e. federal grants are distributed regardless of the location of the applicant). The same goes for federal loans, as the federal level managed them jointly with the private sector since the 1960s. Capital loans for several programs (Federal Direct Stafford Loans, Federal Direct PLUS Loans, Federal Direct Consolidation Loans, and Federal Direct Unsubsidized Stafford Loans) are currently calculated based on student needs and the eligibility of institution and are unrelated to state expenditures.

On the other hand, there were several integrated programs provided through matching funds (e.g. FSEOG, SSIG, LEAP). Another possible link between the levels' spending can be due to the use of the same aid application (i.e. the Free Application for Federal Student Aid, FAFSA), creating a "spurious" link between the two levels. A comprehensive review of 100 most extensive state-funded student aid programs across the 50 states shows that in 70% of the cases, states consider FAFSA to measure the state's eligibility criteria (Education Commission of the States, 2015).

Canada appears to have created a more direct interdependence between its student loans spending. In 1964, when the federal level initiated the CSLP, it did so through a matching scheme where 60% of the assessed financial need was provided from the federal level while provinces covered for the remaining 40% (Student Loans Act of 1964), while integrating the federal and provincial portions into one single solution. As stated in the Annual reports of the CSLP:

> "*Students in integrated provinces (British Columbia, Saskatchewan, Ontario, New Brunswick and Newfoundland and Labrador) benefit from having a single, integrated loan, and are not required to manage two separate (federal and provincial) loans. Students in these five integrated provinces comprise more than 80% of Canada Student Loan borrowers. Both federal and provincial*

portions of their loans are administered under one account, with the NSLSC as their one point of contact. Quebec, Nunavut and the Northwest Territories do not participate in the CSLP but receive alternative payments from the Government of Canada to operate their own student financial assistance programs"

(Employment and Social Development Canada, 2018, 8)

The fact that students apply for both grants and loans under the same application, might further integrate these programs in their administration. Also, federal loans are highly related to other student aid programs, which might further the interrelations between the levels. For example, the CSLP confusingly comprises also non-reparable portions, such as the repayment assistance plans to support borrowers, loan forgiveness and scholarships.

3.6. The Co-Dependency of Student Aid Resources

3.6.1. Finding: More Integration of Recourses in Canada than the United States

The assessment of intergovermental co-dependency is also done by describing an analyzing their expenditures. Figure 3.1 shows federal and states total spending on student aid which includes grants, loans and tax credits. There are three relevant observations related to the federal and state behavior that indicate a relationship between the two:

1. There is a synchronized increasing trend in both federal and state expenditures. In specifics, the federal level's increase is more exponential[xxvi] (amounting to approximately 80% between 1987-1998, in constant dollars) while the states' increase is more linear (amounting to 46% between 1987-98, but slowing down to 20% between 1998-2009).

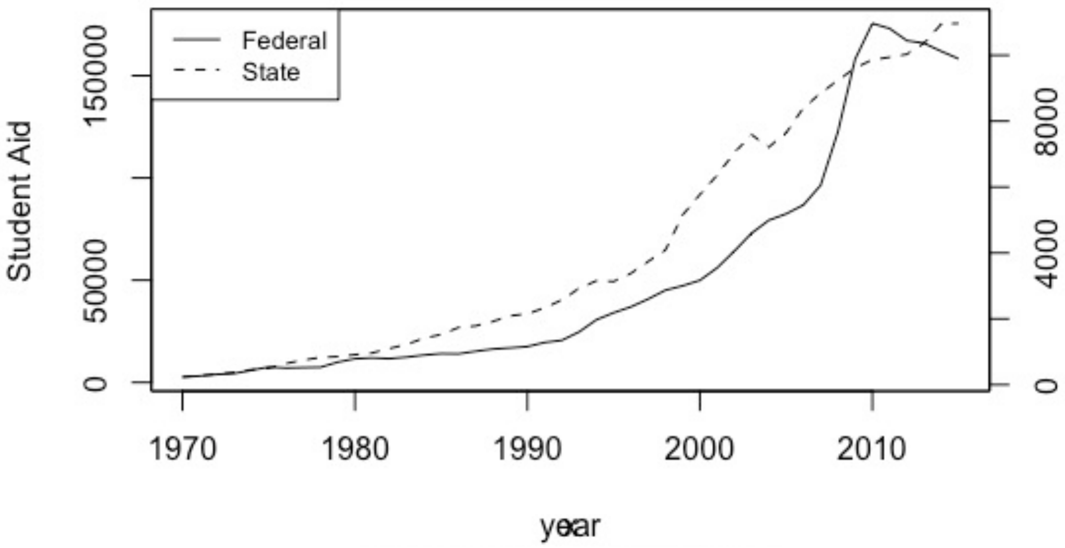


Figure 3. 1 Total Federal (left) and State (right) Values of Student Aid

In million dollars (in 2016 dollars)
Source : College Board

2. There are two critical periods between 1970-1980 and after 2008 in which the levels seem to move in opposite directions. The period after 2008 confirms the findings by Bettinger and Williams (2014) related to Pell Grants.

3. The federal-to-state ratio is extremely high, showing a disproportionate contribution of the federal level. This asymmetry has also been reported by the CollegeBoard, as in 2014, the federal government issued $101 billions in student loans, while states offered only $430 million, reported to be less than 0.5% of federal contributions (The PEW Charitable Trusts. 2017; The College Board 2018).

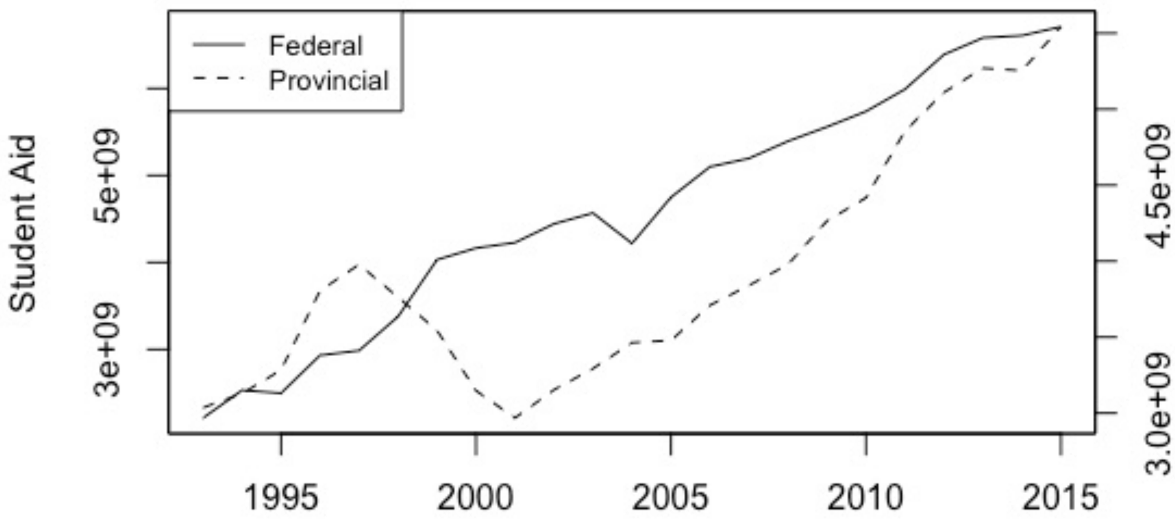


Figure 3. 2 Total Federal (left) and Provincial (right) Values of Student Aid

in a million dollar (in 2016 dollars)

Source : CMEC (2018) and Author's Calculations

Similarly, figure 3.2 illustrates three major observations that indicate a relationship between federal and provincial expenditures. Also, it visually highlights the differences between the two countries.

1. Differently from the United States, student aid has been following a cyclic behaviour at both federal and provincial levels.
2. The levels have been systematically opposing one another[xxvii] From the late 90s until around 2001; after which they followed the same direction (first upward then downward).
3. The federal-to-provincial ratio is lower than the United States.

The existence of a significant relationship between the levels cannot be understood just from observing the data. One way to test for any significant long run relation between the

Table 3. 3 The Johansen Co-integration test results for all possible pairs of national-subnational student aid expenditures in the United States and Canada					
Inter-governmental pairs	lags	Hypotheses	H_o	CV	Test Statistics
United States					
Federal/State (Total)	2	No co-integration	r=0	**15.67**	**20.5159**
	2	At least 1 vector	r≤1	**9.24**	**6.382143**
Federal/State (Grants)	2	No co-integration	r=0	15.67	18.31797
	2	At least one vector	r≤1	9.24	13.01978
Federal/State (Loans)	4	No co-integration	r=0	15.67	9.525548
	4	At least one vector	r≤1	9.24	1.400124
Canada					
Federal/Prov (Total)	6	No co-integration	r=0	**15.67**	**24.29865**
	6	At least one vector	r≤1	**9.24**	**3.609987**
Federal/Prov (Grants)	6	No co-integration	r=0	**15.67**	**24.94742**
	6	At least one vector	r≤1	**9.24**	**5.020252**
Federal/Prov (Loans)	6	No co-integration	r=0	**15.67**	**20.26542**
	6	At least one vector	r≤1	**9.24**	**2.113182**

Legend:

r: the number of co-integration vectors

CV: Critical value for a Standard alpha of 0.05

H_0: Null hypotheses

Prov: Provincial

levels is through the test of co-integration (Murray 1994). **The analysis was introduced in the 1980s to analyse the relationships between variables on the long run. Finding a significant co-integration means that the variables (in this case federal and subfederal expenditures) tend not to drift too far apart from each other over time. If so, any deviation apart from one another inevitably returns back to an established value (i.e. the mean) (Maddala and Kim 1998).**

The two predominant cointegration methods used in the literature are the Engle-Grangers Two Step Estimation Method and the Johansen's method. I opted for the second method (Johansen) in view of the fact that the former needs a larger sample size to avoid estimation errors (Brooks, 2008). The Johansen's test is done on the pre-whitened series and investigates two hypotheses: 1) that there is no co-integration, and 2) that there is at least a co-integrating vector. It does so by estimating the rank r of a given matrix of time series. The null hypothesis of r=0 means that there is no co-integration at all. In this example, it is interpreted as no long-run relationship between federal and subfederal levels. A rank r>0 implies a co-integrating relationship between two or possibly more time series. The hypotheses are rejected if the test statistic is higher than the confidence level.

The results from the Johansen test of co-integration are reported in table 3.3. They clearly show that, in the United States, the total contributions of federal and state levels are integrated in the long run[xxviii]. In details, only when expenditures of both grants, loans and tax credits are aggregated (Federal/state Total expenditures) that the null hypothesis of the maximum Eigen test (r=0) is rejected (test statistic 20.51 is higher than the critical value 15.67), and the trace Johansen test (r≤1) shows that we cannot reject the null hypothesis of at least one integrating vector (test statistic 6.38 is lower than the critical value 9.24). These results are different for the case of Canada as the federal and provincial levels are integrated for both aggregated expenditures (federal/provincial Total expenditures) and disaggregated expenditures (for grants and loans separately).

<table>
<tr><td colspan="5">Table 3. 4 Significant Cross-Correlations among Pre-Whitened Federal and State Series, for the United States and Canada (Appendix 3.6)</td></tr>
<tr><td>Country</td><td colspan="2">United States</td><td colspan="2">Canada</td></tr>
<tr><td>Output
Input</td><td colspan="2">State</td><td colspan="2">Provincial</td></tr>
<tr><td rowspan="4">Federal</td><td colspan="2">Total student aid</td><td colspan="2">Total student aid</td></tr>
<tr><td colspan="2">3
(+)</td><td colspan="2">-2 -1 3
(-) (-) (+)</td></tr>
<tr><td>Grants</td><td>Loans</td><td>Grants</td><td>Loans</td></tr>
<tr><td>ns</td><td>ns</td><td>-4
(-)</td><td>0 1 2
(+) (+) (+)</td></tr>
</table>

Legend:

NS stands for non- significant cross-correlations.
The signs (+/-) indicate a significant cross correlation between the two associated variables with lags corresponding to the numerical values 0,1,2,3. For example, in the United States, the federal (output variable) lagged the state (input variable) by three periods. The plus sign (+) indicates that the relationship is positive (increases in federal spending lead to increases in state spending).

To complement these findings, I resort to cross-correlations on the pre-whitened data[xxix]. Time Series Cross-correlations ascertain for how the variables tend to deviate from their expected values in similar ways. Results are reported in table 3.4 and show the following: In the United States, state expenditures are dependent on federal ones. The positive correlation indicates that an increase (decrease) in federal expenditures will be followed by an increase (decrease) in state expenditures. The strongest relationship is found at lag 3. This means that, in the long run, changes in federal expenditures lead state changes by three years. For example, an increase in federal aid in 2015 is likely to lead to an increase in state aid in 2018. Similarly to the United States, Canadian provinces appear to respond to previous federal expenditures with the strongest relationship being positive at a distance of 3 years (i.e. changes in federal expenditures lead provincial changes by three years). However, differently from the United States, provinces also negatively lead the federal expenditures by 1 and 2 years (Table 3.8).

While the coefficients alone lead to think of a relatively stronger codependency in the United States than in Canada (a correlation of 0.58 in the USA compared to 0.43 in Canada, see Appendix 3.6, table 3.8), the co-influence between the Canadian federal and provincial levels suggests a "two-ways" integration in the Canadian case. Strikingly, these observations confirms a possibility of integration between the levels' resources, and paradoxically, its presence in Canada more than in the United States. The previous findings are also cross-validated by looking at specific aid programs (grants and loans) to enhances the comparability between the two levels and the likelihood of an existing integration. Figures 3.3. and 3.4 (Appendix 3.7), along with the cross-correlation and co-integration tests in tables 3.3. and 3.4, signal no significant relationship between the two levels. Differently, the behavior of Canadian expenditures disaggregated by grants and loans indicated a stronger integration than the United States. Not only figures 3.5 and 3.6 (Appendix 3.8) confirm a continuous interaction between the two levels that appear compensatory, the statistical tests indicate significant interdependences between the Canadian levels across its various programs.

3.7. Discussion

In this chapter, I started by hypothesizing that student aid, in both the United States and Canada, will be designed within the boundaries of the states/provinces, exhibit low intergovernmental codependency of decision-making and resources, and show a moderate level of federal hierarchy (H.3.1, H3.2, H.3.3). I also inspected the disintegrated structure to be reflected through the choice and routine adjustments of the legislative, regulatory and fiscal instruments.

Consistent with the adopted theoretical approach, results show that federal structures are indeed institutional boundaries for student aid change. The constitutional design defines educational policies as intrastate, more clearly in the case of Canada than the United States. What is interesting however is that student aid was able to challenge the disintegrated structure under different aspects. In the United States, the policy allowed a federal hierarchy to develop, manifested through the federal engagement in legislation and rule-making, the growing role of the DoED, its discretion in defining federal-to-state grants as well as the predominance of direct modalities of disbursement. When it came to the codependency between the resources, Canada showed more intergovernmental dependencies over student aid resources than the United States. The quantitative results were also in line with the previous conclusions, time-series analyses tests exposed a multi-directional relation between the Canadian levels of government, compared to a hierarchical one in the United States.

These findings are meaningful for both education and federal scholarships. As stated earlier, the literature has overlooked the multi-level nature of student aid, and this chapter contributes to its clarification. The results establish an indispensable role for the federal level over student aid in both countries. Furthermore, student aid policies are found to be differently integrated from one country to another, which reflects in their policy outputs. For example, the United States' favors formula and matching grants for student aid as it reflects its hierarchical structure. These conclusions are equally relevant to the federal scholarship. The chapter confirms that even within disintegrated systems, national-subnational structures are not always entrenched in a clear-cut separation of functions and resource distribution. First, federal systems can assign legislative power to the center and periphery in exclusion of one another (Canada), or have room for both levels to regulate their policies (United States). Hence, the same decentralized and disintegrated federal arrangement can recognize more legislative power to the federal level (United States) or to the subnational (Canada). Second, central governments can still be highly influenced over decentralized policies in disintegrated systems. Third, when it comes to resources, some federal systems allow more insulation between their governmental spending (United States) than others (Canada), but neither one is safe from creating co-dependencies in their resources.

Taken all together, these results leave us with two major questionings. The first query is related to the interpretation of the complex quantitative results. I acknowledge that there are two main reasons why levels can be correlated without them being directly related:

1. The two levels can have complementary functions. **In other words, the observed relationship between the two levels can be due to their response to different variables, in a way that their roles complement one another. The first variable that can be influencial to either level is related to income. The very definition of the need-based portion of student support is that it reponds to students' need. Also, as stated earlier in this chapter, both the federal and 70% of states use the FAFSA, which evaluates income as a measurement for students' eligibility to aid programs (Doyle and Pingel, 2016). It becomes logical to investigate whether income is an influencial part in the disbursement of aid programs. The second important variable is enrollment. This is because student support, in both levels of government, is logically expected to vary according to the number of students and its change. Another variable worth investigating is related to tuition fees. According to the Bennett hypothesis, increases in governmental expenditures over student aid have been often associated to increases in tuition fees (Bennett, 1987). Although counter-intuitive, this hypothesis can be simply explained due to the fact that: if money is provided to students to spend on education, they will be more willing to spend. Several studies tested this hypothesis on both federal and state expenditures, but results did not provide any specificity to the impact of each level, and findings were often contradictory (Rizzo, and Ehrenberg**

2004). The fourth pertinent variable is unemployment. Student aid is by definition the closest alternative to alleviating the problem of unemployment, especially for youth between 17-24 years of age. It is reasonable to expect that the federal level will raise student aid as a response to the increase in unemployment rates. States on the other hand can be more effective in responding to local needs and so subfederal student aid might be expected to be more responsive to variables such as income, and enrollment levels. Last, it may be worth noting that alternative explanations to the relationship between tuition fees and student aid have been presented by refinements to the Bennett hypothesis, suggesting that selectivity, tuition caps and price discrimination stregnten the link between financial aid and tuition (Gillen, 2012). Nevertheless, these variables only help explain a unidirectional link between financial aid (as a cause) and tuition fee (as a consequence). More importantly, they had been dismissed from this research's design as they can not help explain the average case of federal and state expenditures (the dependent variables in the tested model).

To test for the possibility of complementary roles played by the national and subnational levels, I used autoregressive time series regressions. Results are reported in Appendix 3.9, table 3.9. In brief, income is not influential on the detrended data, rejecting the aforementioned possibility that FAFSA harmonizes the two levels' responsiveness to income. Instead, other variables such as tuition fees, enrollment and unemployment are significantly correlated with federal and state student aid but in a mutually exclusive manner. Put simply, the federal level is found to be responsive to the business cycle (for both grants and loans), and to the overall number of high school graduates (only for grants) which can be part of its macro-economic stabilizing function (FGT). This finding is in line with the pro-cyclic role of federal Pell Grants that had been reported by Bettinger and Williams (2014). On the other hand, state grants are only responsive to tuition, more in line with their local cost-stabilization functions. Hence, these results suggest that the two levels "specialize" in different functions, which integrates them in a complementary manner. **In other words, while the federal level is likely to be more specialized in counteracting enrollment and unemployment, states are likely to more dedicated to the dampening of the weight created by tuition fees.** The same analysis was run on federal and provincial grants and loans, but the functional variables were found to be non-significant. Hence, the cross-correlations found between the levels spending could be due to their specialization in specific functions.

2. As suggested by Bellinger and Williams (2014), states might subtract federal money from their state aid calculations even if they do not receive it directly. The possibility of an "administrative integration" will be investigated in chapter 6.

3. Beyond the scope of this thesis, the role played by third parties (such as higher education institutions) needs to be mentioned as a possible explanation for the relationship between the levels. Universities remain at the center of federal-state interactions and can explain why the two correlate. For example, institutions were found to use state money (under the states' obligations to match for LEAP or SLEAP) to cover for their obligations towards the federal level (under universities' obligations towards' FSEOG non-federal portion) (Dept of Education 2006)[xxx]. Private investors and loan servicers have also played an important role in linking the federal and state levels.

The second interrogation is related to drawing conclusions from the complexity of the previous results. The disintegrated federal structure was found to impact student aid policies, but only to a certain extent. This is not a contradictory statement. Structures explained the overall linearity of intergovernmental student aid but can not explain the instances in which intergovernmental relations where reshuffled. In this sense, structures only matter to the extent that they create a boundary limiting the behavior of the levels and their choice of policy instruments; but they do not guarantee that policies (in this case intergovernmental relations over student aid) remain static. Therefore, I ask *how did* *student aid managed to conform/challenge the above described federal structures*? and more importantly, *why*?.

In agreement with the federal scholarship, the two countries' differences are more apparent in their dynamic intergovernmental interactions rather than their structures, with Canada being more politically flexible compared to the rigid legalism in the United States (Field 2006). Therefore, the following chapter will investigate the non-linear aspect of student aid and its incentives.

Appendix 3

Appendix 3.1: Focal laws and regulations

Table 3. 5 Focal laws and regulations in the United States

Date	Reform	Brief description
1944	Servicemen's Readjustement Act (G.I. Bill)	Provided opportunities for veterans to pursue higher education.
1952	Veterans' Readjustement Act (Korea G.I. Bill)	Extended the G.I Bill to Korean war veterans.
1958	National Defense Education Act	Increased funding to institutions/students with a focus on science programs. Title II authorizes the provision of student loans and conditions of their access.
1964	Economic Opportunity law	Encouraged mobilizing the human and financial resources to combat poverty by stimulating state and local initiatives.
1965	The Higher Education Act	Authorized the federal student aid programs (Title IV programs) (e.g. federal scholarships, federal insurance on private loans) Authorized the National Defense Student Loan Program and the College Work-Study Program Created the Educational Opportunity Grant Program and the Guaranteed Student Loan Program.
1978	Middle Income Student Assistance Act	Extended the Guaranteed Student Loan program and BEOG to middle and upper middle class.

1979	HEA Amendments (Higher Education Technical)	Made the Federal government responsible for collecting defaulted loans. Included vocational schools as part of "institutions of higher education" expanding the range of beneficiaries.
1993	HEA Amendments (The Student Loan Reform Act)	Improved the management of loan repayments. Replaced the Federal Family Education Loan program with the Federal Direct Student Loan program.
1997	Tax Payer Relief Act	Introduced a $400 of tax credit for each child under age 17. Section 529 included the Saving plan. The act exempted tuitions and also loan interests from taxes. Rendered saving for tuition and loan interests as tax deductible.
1998	HEA Amendments	Established the Performance Based Organization (PBO) (student aid delivery system). Increased the federal Pell Grant and loosened its eligibility.
2009	The American Recovery and Reinvestment Act	Established the American Opportunity Tax Credit which increased the Hope credit.
2009	Student Aid and Fiscal Responsibility Act (SAFRA)	Expanded Pell Grants and ended the Federal Subsidized private loans, replacing loans with an entirely direct lending.
2010	Health Care and Education Reconciliation Act	Included the Student Aid and Fiscal Responsibility Act which ended the federal direct loans and increased Pell Grants.

Table 3. 6 Focal laws and regulations in Canada		
Date	Reform	Reform content
1945	Veterans Rehabilitation Act	Federal government provided funding to universities in the form of tuition fees for qualified veterans enrolling at a university and an additional grant of $150 per veteran.
1964	Canada Student Loans Act	Established federal guaranteed students' loans.
1977	Programs Financing Act (EPF)	Provided unconditional block transfers to the provinces for post-secondary education. The role to act was given to the provincial jurisdictions.
1994	Canada Student Financial Assistance Act	Gave the responsibility of the collection of defaulted loans to the banks.
1998	The Budget Implementation Act	Established the Canada Millennium Scholarship.
2004	Education saving Act	EncouragED the financing of higher education through saving from early childhood.

Appendix 3.2

Different grants typologies and their definitions

Table 3. 7 Grant typologies with examples	
Grant typology	Different forms
Conditional:	Project categorical grant: awarded on a competitive basis through an application process specified by the federal level
	Formula categorical grant: allocated among recipients according to factors specified within enabling legislation or administrative regulations
	Formula-project categorical grant: uses a mixture of fund allocation means, typically involving the use of formula specified within enabling legislation or administrative regulations to allocate available funds among the states, followed by an application process specified by each recipient state to allocate available funds on a competitive basis among local governments or other eligible applicants
	Open-end reimbursement categorical grant: is often regarded as the equivalent of formula, provides a reimbursement of a specified proportion of recipient program costs, eliminating competition among recipients as well as the need for an allocation formula
Unconditional:	Block grant: can be used only for a specifically aided set of programs and usually are not limited to narrowly defined activities
	General Revenue-Sharing: can be used for any purpose not expressly prohibited by federal or state law and is not limited to narrowly defined activities

Appendix 3.3

Step 1: Data adjustments

All data (federal and state for the United States, federal and provincial for Canada) were initially found to be non-stationary. This might be induced from their clear trend, cycle and high variance. Therefore, I resort to two data adjustments before operating on the data:

1. I choose logarithmic transformations of the original data to stabilize the variance of each series. In both countries, the log-transformations did not seem to normalize the data distribution (data was still non-stationary).

2. I differentiated the data to reach stationarity in the mean. The first differentiation seems to normalize the United States' data but not the Canadian series (both federal and provincial). I attempted to differentiate the data for a second time (2 order differentiation) as data was presenting a fat-tailed distribution. Fat-tailed distributions are highly problematic. In a normal distribution, most observations are concentrated around the mean (about 99.7% of all variations falls within three standard deviations of the mean). This means that there is only a 0.3% chance of an extreme event occurring. In a fat-tailed distribution, however, the risk of extreme events (such as cutting all funds for student aid) is so high and, worst of all, difficult to predict. The catastrophic 1998 Russian devaluation and debt default, causing the collapse of the long-term Capital Management fund, is actually one that had been previously described as a fat-tailed distribution (Bremmer and Keat 2009).

Appendix 3.4

Step 2: Ascertaining the stationarity of the data through the unit root test

In order to ascertain for the stationarity of the data, I use the Unit Root test which sees whether the standard errors (residuals) follow a normal distribution (i.e. whether the deviations from the mean have in their turn a mean of zero). This way, the statistician can have an understanding of the behaviour of such deviations. Even when there is a trend and/or a drift, (i.e. a rate at which the values change), the Unit root still looks for stationarity along with these properties (i.e. stationarity with a trend, and stationarity with a drift). For the United States, Unit root test results showed that federal expenditures are not stationary neither around a trend nor with a drift. This means that the data varies a lot, and such variation is not stable, neither around the upward trend that was observed, nor with a rate at which the expected value of the process changes. On the other hand, state expenditures are stationary with a drift. For the 30 years' of Canadian data, the Unit Root test shows that the federal expenditures are also not stationary neither around a trend, not a drift while, in the longer run, the provincial ones are stationary around a trend and with a drift.

Appendix 3.5:

Step 3: Time Series Modelling

After rendering the data stationary, I proceed by inspecting the autocorrelation function (ACF) and partial autocorrelation function (PACF) plots and test for 25 models for each of the two-series using the Box and Jenkins (1976) approach (Naylor et al. 2006)(Makridakis and Hibon 1997). I identify the models that best represent the underlying process of the data. For the United States, both data visualization and adjustments suggest that the federal time series is represented by a moving average model or order 4 (MA4) while the state data is best represented by an autoregressive integrated moving average (ARMA12) model. This means that each federal observation is correlated to a past value at a distance of 4 years (e.g. 2017 federal expenditures correlate with those of 2013). Under the same logic, each state observation is correlated to both a past value and residuals at a specific year distance (e.g. 2017 state expenditures correlate with those of 2016 and the residuals/noise surrounding 2015).

The proper models is chosen according to the Akaike information criterion (AIC). The variance of the residuals (0.008134 for federal and 0.003743 for state) provides a benchmark of comparison for other researchers that can improve the model. In other words, any improvement of the time series model is going to be assessed by its ability to reduce these residual standard errors. The auto-correlations of the residuals were found to be small for each series, and the Box-Pierce test statistics were all insignificant at the $\alpha = .05$ level (low Chi-square and a p-value greater than the significance level), indicating that the residuals are independent and that the models meet the assumptions and are specified appropriately.

For Canada, the results suggest a random walk[10] with a drift for the federal series, and an AR1 for the provincial, at best. This is highly imperative as a random walk is a non-deterministic behavior. A random walk is defined as a process where the current value of a variable is composed of the past value plus an error term (which is the white noise). In practical terms, it is a process in which the best prediction of y is the previous observation. In other words, it appears that even if we knew everything about the federal state of student aid at a given time, we would still not be able to predict what would happen in the future time. So before considering it as such, I run 25 model combinations which show that, based on the AIC criteria, there are two other potential models: ARMA21 for the federal expenditures, and MA3 for the provincial one. By comparing these four models (RW and ARMA21 for the federal, and AR1 and MA3 for the provincial), the auto-correlations of the residuals is found to be small for the random walk model in the federal level, and MA3 for the provincial and these are the two models I think best represent the process underlying the data. Indeed, the federal series are hard to explain by the past, while for the provincial expenditures, current values seem to correlate with past values at a distance of 3 lags (e.g. 2017 provincial expenditures will correlate with 2014).

[10] A random walk differs from AR1 in that the increments have to be independent of each other while in the AR1 they need not be independent but have to be stationary.

Appendix 3.6

Table 3. 8 Results of time series cross-correlations (table of cross-correlation coefficients)

Lags PROGRAMS	U.S TOT	U.S Grants	U.S Loans	CA TOT	CA Grants	CA Loans
-5	-0.032	-0.181	0.002	-0.134	0.121	-0.324
-4	0.054	0.086	-0.005	-0.139	-0.459	-0.087
-3	-0.236	0.004	-0.073	-0.04	-0.299	-0.221
-2	0.432	0.212	-0.28	-0.38	-0.171	0.158
-1	-0.155	0.204	-0.238	-0.323	-0.074	0.086
0	-0.046	0.17	-0.042	-0.069	-0.154	0.337
1	-0.075	0.226	0.11	-0.094	-0.222	0.328
2	-0.292	0.126	0.281	0.157	-0.013	0.405
3	0.586	0.164	0.251	0.431	-0.008	0.034
4	0.308	-0.135	-0.051	0.155	-0.006	-0.114
5	-0.171	-0.097	-0.082	-0.091	0.002	-0.226

Legend

TOT: total expenditures including loans grants and tax credits

U.S: United States

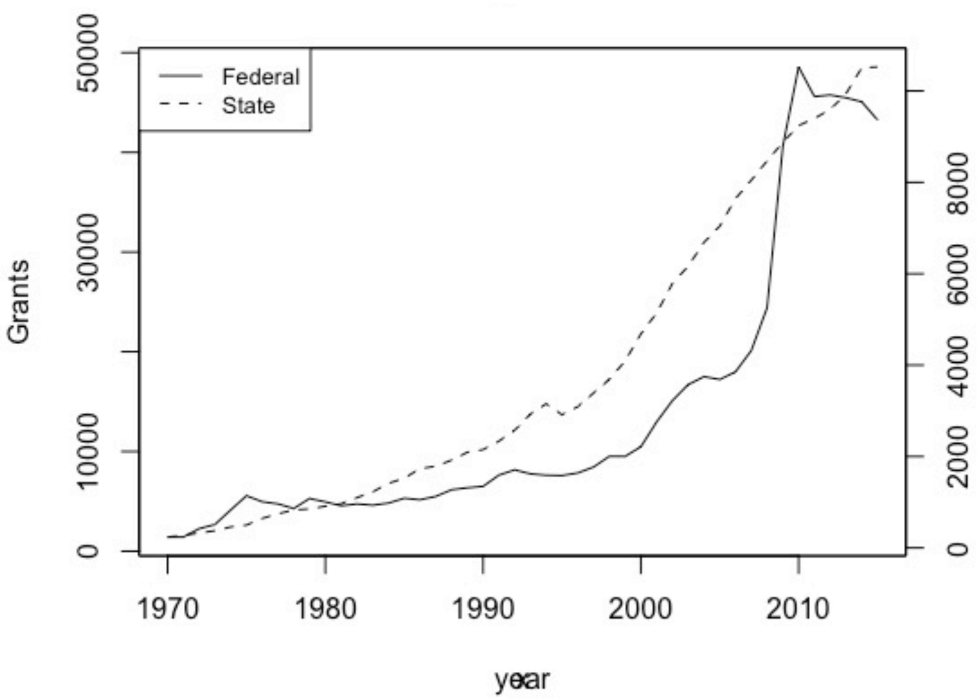
CA: Canada

APPENDIX 3.7

Figure 3. 3 Federal and State Student Grants in the United States

in million dollars (in 2016 dollars)

Source: College Board and Author's calculations

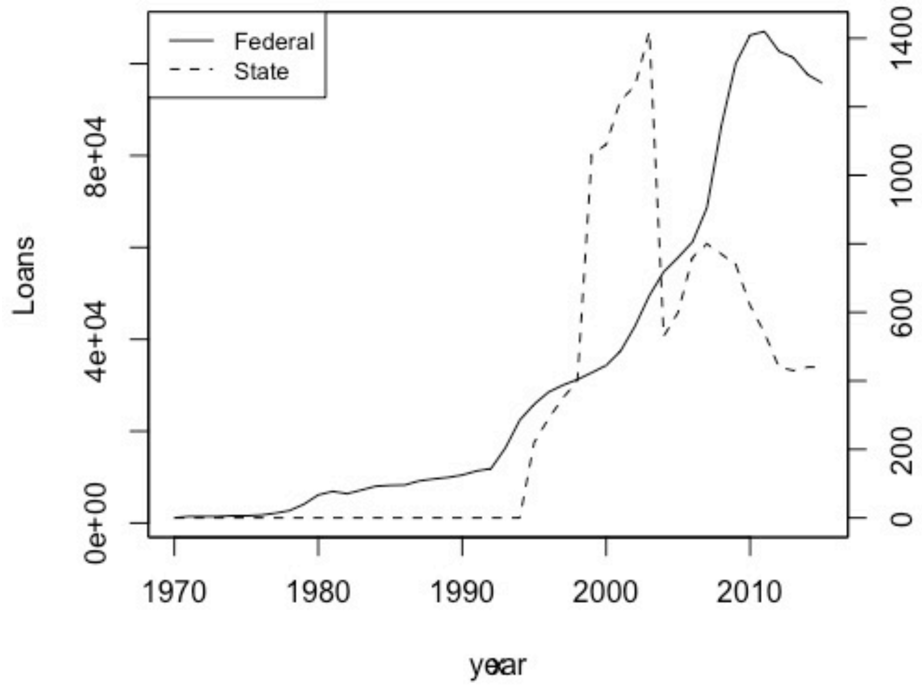


The data on grants (figure 3.3) shows a behaviour similar to the aggregated data on student aid (figure 3.1). **The figure shows that the federal level's increase is more exponential, the two periods between 1970-1980 and after 2008 exibit a tradeoff between the levels, and the federal-to-state ratio remains high.**

Figure 3. 4 Federal and State Loans, in the United States

in million dollars (in 2016 dollars)

Source: College Board and Author's calculations



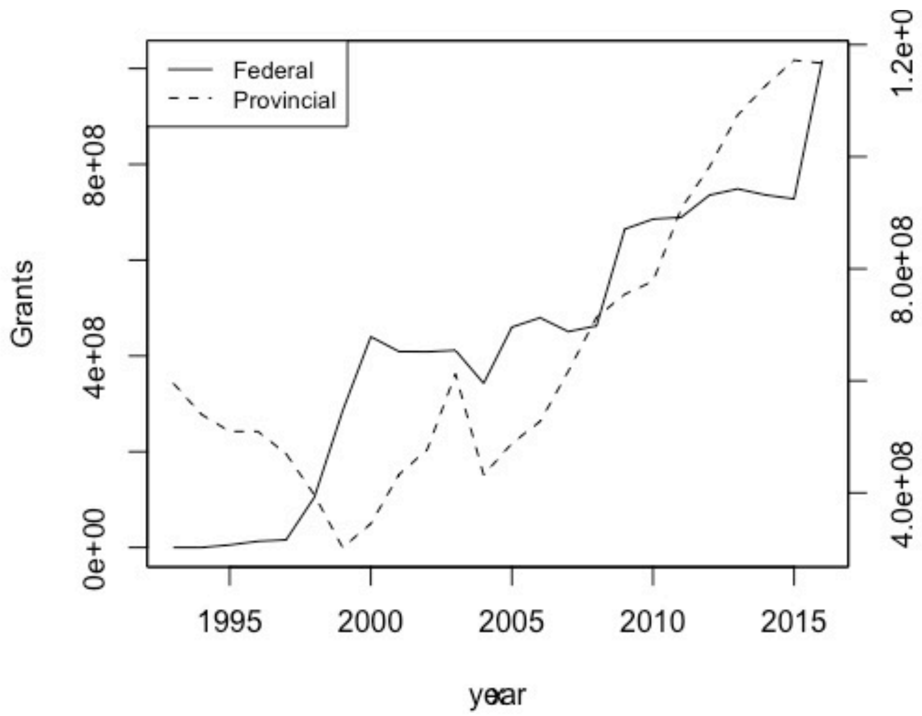
A major change to grants and loans appeared after 2008. While federal grants persisted in their upward trend peaking at $40 billion in 2010 before dropping; in counterpart, state grants continued increasing till around 2014, contradicting the decrease reported by several researchers (e.g. Bettinger and Williams 2014; Mitchell et al 2018) and dropped later. With regards to loans, since 2000, the two levels were almost mirroring each other. The federal level followed the same trend as federal grants, increasing until about 2011 then dropping. On the other hand, state loans changed in a somewhat cyclic manner, dropping significantly since 2000. After 2008, they appear to move in opposite directions (with increases of federal loans and decreases is state loans).

APPENDIX 3.8

Figure 3. 5 Federal and Provincial Grants, over time

(in 2016 dollars)

Source: CMEC, Author's calculations

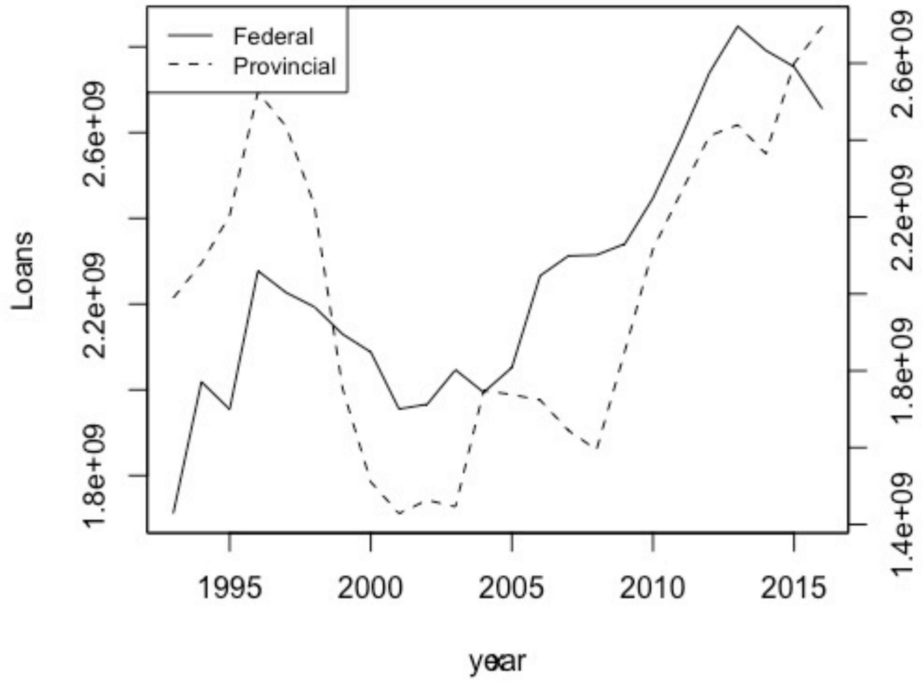


<u>The figure 3.5 shows that federal and provincial grants follow a cyclic behavior where the two distributions often appear to trade-offf.</u>

Figure 3. 6 Federal and provincial loans, over time

(in 2016 dollars)

Source: CMEC



For Canada, by describing the data on grants and loans, the two levels fluctuate in a cyclic but also systematically opposed manner. For example, figure 3.5 shows that drops in provincial ones accompanied increases in federal grants, and vice versa (except between 2009-2011, 2015-2016); and figure 3.6 shows the same for loans (except between 2010 and 2014). A change appeared for both grants and loans in 2008, as both the trade-off between the levels and their cyclic aspect became less pronounced. More astute observations can be inferred from the rate of increase, as federal grants slowed down when provinces increased their grants.

Appendix 3.9

Table 3. 9 Regression results between federal and state grants in the United States

	Dependent variable:		
	Federal Grants	State Grants	
	(1)	(2)	(3)
Federal Grants			0.080
			(0.069)
Income	-0.483	0.447	0.485
	(0.700)	(0.305)	(0.305)
High School Graduates	1.714*	0.534	0.396
	(0.860)	(0.375)	(0.391)
Tuition	0.508	0.361*	0.321*
	(0.425)	(0.185)	(0.188)
Unemployment	0.064***	-0.004	-0.009
	(0.018)	(0.008)	(0.009)
Constant	0.019	0.027**	0.025**
	(0.023)	(0.010)	(0.010)
Observations	45	45	45
R^2	0.330	0.189	0.216
Adjusted R^2	0.263	0.108	0.116
Note:	*p<0.1; **p<0.05; ***p<0.01		

- Model 1: uses federal expenditures as the dependent variable, and functional variables (Income, inequality, youth unemployment rate, enrollment and tuition) as independent variables.
- Model 2: uses state expenditures as the dependent variable, and functional variables (Income inequality, youth unemployment rate, enrollment and tuition) as independent variables.
- Model 3: uses state expenditures as the dependent variable, and federal expenditures along with the functional variables (Income inequality, youth unemployment rate, enrollment and tuition) as independent variables.

Table 3.10 Regression results between federal and provincial grants in Canada

	Dependent variable:		
	Federal Grants	Provincial Grants	
	(1)	(2)	(3)
Federal Grants			-0.001
			(0.004)
Enrollment	-59.322	1.728	1.660
	(97.371)	(1.824)	(1.889)
Tuition	17.404	-0.637	-0.617
	(67.245)	(1.260)	(1.294)
Unemployment	-5.468	0.114	0.107
	(22.831)	(0.428)	(0.439)
Constant	2.210	0.020	0.023
	(3.516)	(0.066)	(0.068)
Observations	23	23	23
R^2	0.067	0.147	0.150
Adjusted R^2	-0.080	0.013	-0.038
Note:			*p<0.1; **p<0.05; ***p<0.01

Regression in the case of Canada was run both with and without the variable of income. Both attempts produced no significant regression coefficients. I opted for the results that exclude income to enable a model with less independent variables in view of the limited number of observations (23) compared to the USA.

Several models were tested by including the cointegration results and adjusting the parameter covariance matrix accordingly.

Table 3. 11 Functional variables and their sources		
Variable	Definition	Source
Income Inequality	The difference between the highest and lowest 10th	Statscan[11] U.S Census Bureau[12]
Enrollment	Postsecondary enrollments and High school graduates	Statscan[13] NCED[14]
Unemployment	The annual average of unemployment rates	Bureau of Labor Statistics[15] Author's calculations[16] Statscan[17]
Tuition fee	Total tuition, room, and board, for all institutions (U.S). Weighted average tuition fees for full-time Canadian Undergraduate students by province(CA)	NCES, CollegeBoard, Author's corrections[18]\ Statscan[19]

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[11]Source:https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610010101#timeframe

[12] Source: https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-households.html

[13]Source:https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3710001101#timeframe

[14] Source: https://nces.ed.gov/programs/digest/d18/tables/dt18_219.10.asp

[15] Source: https://data.bls.gov/cgi-bin/surveymost?ln

[16] I calculated the yearly average of the monthly data provided for Youth Unemployment.

[17]Source:https://www150.statcan.gc.ca/n1/en/daily-quotidien/170707/cg170707a003-eng.csv?st=A-d_6QIk

[18] I resorted to data imputation and corrections between 1970-1975 and transformed it in 2018 dollars. Data was found under tabn320, Source:https://nces.ed.gov/programs/digest/d07/tables/dt07_320.asp.
Data between 2008-2018 is found in table cp-2018. Source: https://trends.collegeboard.org/college-pricing/figures-tables/tuition-fees-room-and-board-over-time

[19]Source:https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3710000301#timeframe

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NOTES

[i] The provisions of Section 93 in the Constitution Act.7 give each province authority over education. Also, universities were under federal responsibilities. This division of responsibilities did not change during the constitutional reforms in 1982.

[ii] Since the British North America Act (1867), welfare was majorly indicated under the subnational responsibilities.

[iii] The workmen's compensations were introduced in 1908 in Quebec and Ontario and later implemented in all provinces.

[iv] This program aimed to meet the provincial contributions and thus varied between provinces (four provinces relying on grants and five relying on loans).

[v] The federal responsibility for the national economy was a window for the establishment of education aid programs in 1912 with the introduction of conditional grants to the provinces for agricultural research and training (e.g. the Agricultural Aid Act (1913); The Technical Education Act (1919); the establishment of the National Research Council (1916), a body that enabled the federal government to sustain scientific research (Harris 1976).

[vi] Initially, the G.I bill intention was to derail beneficiaries from taking costly pension benefits, so aid to higher education access was given as an alternative option to pension (Altschuler and Blumin 2009; Garritzmann 2016; Humes 2006; Mettler 2005; Ross 1969; Wilkinson 2005)

[vii] The amount was also related to the number of dependents.

[viii] The loans were directed towards students in science fields.

[ix] The Higher Education Act of 1965 is an authorizing statute; during its reauthorizations, the congress examines the status of student aid programs and sees whether they have to be continued or changed. Reauthorizations occurred in 1968, 1972, 1976, 1980, 1986, 1992, 1998 and 2008.

[x] See 1087kk–1087vv of the act.

[xi] See 1070a of the act.

[xii]. Universities will later be banned from receiving student aid benefits if engaged in fraudulent behaviours, such as misinterpreting Title IV's requirement which states that programs should "prepare students for gainful employment in a recognized occupation or profession" (see, e.g. APSCU v. Duncan).

[xiii]. The Economic Opportunity Act of 1964 marked a move towards cost-sharing with institutions/students (e.g. the financial support for part-time students under the work-study program was given in a federal/institutional arrangements of 90/10 per cent) (Strach 2009).

[xiv] The government of Canada only paid the interest on student loans during study and until six months after completion. After this period, interest was charged to borrowers.

[xv] The Student loan Act was replaced in 1995 by the Student Financial Assistance Act. Loan limits increased with the new CSLP, but the repayment schedule became at the hands of financial institutions. r

[xvi] Banks became responsible for collecting defaulted loans in return for a fixed payment from the Canadian Government.

[xvii] A cap of the contribution to a maximum of $105 a week (a cap that would increase in the years).

[xviii] FSEOG were run through block grants and administered by institutions under a 75-25% rule where at least 25% of the funds should be non-federal, without specification as to whether it should come from state governments or from institutions.

[xix] Retrieved from https://ifap.ed.gov/fsahandbook/doc0356_bodyoftext.htm; and https://ifap.ed.gov/regcomps/attachments/692.pdf

[xx] See Title IV, Part A, Subpart 4.

[xxi] Before 1979, state laws could not refer their defaulted loans to the Department of loan collection. In that year, the Secretary of education (the Federal Commissioner of the Education agency at that time) was authorized to collect defaulted direct student loans (Higher Education Technical Amendments of the HEA65).

[xxii] The DoED services federal student loans along with the Federal Consumer Financial Protection Bureau.

[xxiii] In 1998, Special Opportunities Grant will be renamed as the Canada Study Grants.

[xxiv] The Canada Millennium programs provided non-repayable grants in 3 major forms:

- The bursary program was given to the provinces annually on a per capita basis.
- The Excellence Award Program, based on merit, was given through local, provincial and national awards. In the provincial cases, based on an assessment done by the institutions.
- The Millennium Access Bursary, based on need.

[xxv] The Canada Millennium programs were initially under a ten years' mandate, which was renewed in 2008 for further two years (2008-2010).

[xxvi] The exponential increase of federal spending is mostly attributed to the growth of loan programs (responsible for two-thirds of the increase).

[xxvii] The direction of the distributions' skewness also changes throughout the last decades. The stable finding is that when it is positively skewed for the federal level, it has to be negatively skewed for the provincial level, and vice versa.

[xxviii] The number of the found co-integrating vectors is one.

[xxix] Pre-whitened is an operation on time series to transform it into a white noise, which enables further analyses on the data. A time series is white noise if the variables are independent and identically distributed with a mean of zero.

[xxx] Further information are taken from *FSEOF non-federal match* found as an excerpt from The Blue Book, 1999. Retrieved from https://ifap.ed.gov/sfadepot/attachments/e7.pdf

4. The Intergovernmental Dynamics of Student Aid

> *"A federal system of government with overlapping jurisdiction depends, then, not upon integrated hierarchy of command to gain co-ordination among diverse jurisdictions, but upon a variety of different co-operative and joint arrangements"*
>
> (Ostrom and Allen 2007, 103)

4.1. Introduction

While federal structure provided -a certain degree of- stability to student aid, the dynamic aspect of these policies is no news. Students know the instability of these programs as they witness their continuous changes at time within one single university cycle. The U.S Department of Education (DoED) described federal grants as "unstable" (e.g. Reauthorization of the Higher Education Act, 1985, Joint Hearings); universities describe student support as volatile and; recently, two economists labeled Pell grant reforms as "sporadic" and "lacking political consensus" **(Bettinger and Williams, 2014).** In the case of Canada as well, the beknown federal scholar Harvey Lazar noticed a "vacillation" about federal and provincial roles over post-secondary education **(Lazar, 2005).** Thus, do these observations reflect a dynamism of student aid trajectories?

4.2. Research Questions and Structure

The previous chapter showed that the student aid is indeed impacted by stable federal structures, but that its story could not be told solely as their result. This is not a contradictory statement. Indeed, I sustain that student aid is designed within a predominantly disintegrated structure in both the United States and Canada. Nevertheless, as the devil lies in the details, findings showed an attempt of these policies to challenge such structure. For example, the singularity of student aid made it escape the intrastate characteristic of education policies in the United States and Canada, adopt a more hierarchical structure in the former than the latter, and integrate resources between the governmental levels in the latter case.

Analyzing federal dynamics can complement the previous chapter's explanation but also expands our understanding of these policies' non-linearity. In this chapter, I use the adopted framework merging neo-institutionalism and rational choice explanations, and ask the following general questions:

RQ 4.1. *whether and how federal dynamics affect student aid change*

RQ 4.2. *under which incentives?*

Answering these questions has a simultaneous relevance for both education and federal scholars. Finding an impact of federal dynamics could further the neo-institutional explanation of student aid change. At the same time, it would reveal why federal systems change in time (Benz and Brochek 2013, 3). Exposing differences in student aid trajectories between the chosen case studies also advances the knowledge about varieties among federal systems.

I structure this chapter into three main sections. In the first section (4.3), I develop the adopted theoretical framework by integrating four major interfaces created between the levels of governments. These latter reflect the degree of federal constraints along with the tension created between the levels, signaled by their ability to collaborate during the design and implementation of policies, and whether they can withheld this ability for a short or a long term. The second section (4.4) presents the empirical findings where student aid is analyzed through federal dynamics. Section 4.5 complements the previous findings by providing a political-economic explanation to the incentives behind these dynamics. Last, section 4.6 concludes with a discussion of the findings.

4.3. Refining the Adopted Framework, Hypotheses and Methodology

The adopted framework by Colino (2013) defines federal dynamics through the joint-decision style between the levels of governments. In other words, intergovernmental interactions constitute a display of where governments' authorities fall. Nevertheless, the framework does not provide clear distinctions between various interacting styles (chap. 6). Numerous scholars drew from the traditional federal scholarship to reveal nuances of intergovernmental interactions, presenting astute differentiations within umbrella terms such as "cooperation". A relevant study by Martin Painter (1998) on Australian microeconomic reforms made a distinction between two cooperative styles: an arm's length cooperation, considered as an interface where levels are weakly integrated, and where agreements between the levels are not binding them; and collaboration, **as an interface with a relatively higher integration and binding between the levels. Under such differentiation, collaboration differs from what most Canadian scholars intend when they use the term "collaborative federalism". This is because it is not characterized by consensus**; instead, unanimity decisions are replaced by majority voting (Painter 1998). Another investigation by Douglas Brown (2002) on the economic union reform in Canada and Australia distinguished between the cooperative style in Canada and the one in Australia. The author also differentiated between competition, as a style with no institutional constraints since each level responds to the other on a unilateral basis, two subtypes of cooperation, differentiating the Canadian model from the Australian, and a managerial rationalism as a bureaucratic interface where policy authorities are delegated to the central level (Brown 2002; Heinmiller 2002).

In an attempt of *Finding a Way Forward in the Study of Intergovernmental Policy-Making*, Timothy Heinmiller converged these studies into four ideal intergovernmental interactions (table 4.1). According to the same author, these interaction styles can be collocated in a continuum representing the degree of institutional constraints put on a policy (Heinmiller 2002, 429). For example, competition reflects the lowest institutional constraint as each level of government responds to the other on a unilateral basis. Centralism is on the other end of the continuum, representing the highest institutional constraint exercised by one single level of government (table 4.1).

Table 4. 1 Varieties of Vertical Federal Dynamics according to the Degree of federal Constraint Author's elaboration				
	Federal constraints on policy authority Low ⟶ High			
Intergovernmental interfaces	Decentralism	Arm's-length cooperation	Collaboration	Centralism

Under this framework, the two predominant federal dynamics suggested by Colino (i.e. centrifugal and centripetal) can be associated with four interaction styles[i]. I collocate them according to the degree of federal constraint over the subnational policy authority (table 4.1) and define them as follows:

- Decentralism is the interface with the lowest level of central constraint.

- Arm's-length cooperation is an interface where the federal restrictions are still modest. In this case, both the center or the periphery can be the prime mover, and each level of government seeks agreement through consensus. Intergovernmental agreements are non-existent or not binding. Cooperation is likely to emerge from decentralized settings as subunits have enough power to reject the federal constraints.

- Coordination is a style characterized by a relatively high federal constraint usually through law mandates that push for coordination. The goal and the amount of contribution are likely to be predefined, and the subunits might be expected to act accordingly. The federal level is also likely to push for coordination to safeguard the implementation of national policies within subunits. Therefore, coordination is expected to emerge from centralized settings as the federal level has enough power to impose its control over the subunits.

- Centralism is the interface with the highest level of federal constraint.

The framework suggested by Colino differentiates between the United States and Canada -with centripetal dynamics in the former and centrifugal in the latter (chapter 2)- and so does the existing literature on intergovernmental interfaces. Nevertheless, this latter recognizes a different nature to Canadian interactions in which balance between the two levels is strongly underlined. For example, Canadian interfaces were argued to emphasize more on consensus between the levels than on the legal compartmentalization of the United States. Hence, a higher degree of political plasticity was observed in Canada compared to the United States. In the 1960s, Richard Simeon suggested a departure from the view of Canadian federalism as embedded within a formal-legal and constitutional mold into a character that he described as "federal-provincial diplomacy" (Simeon 1972). Since then, federal studies highly acknowledge this Canadian mode of operating as "*allowing the federal government to seize initiative over what it deemed to be an important national agenda, and the provinces to retain co-decision rights for future changes*" (Hueglin 2013, 37). This interface is also manifested in the Canadian's "*ongoing process of intergovernmental contracting*" (Rodden 2006, 36) and "*even though the Canadian central government need not obtain the approval of the provincial governments to make policies, it often cannot implement them without cajoling, striking bargains with, and even paying off the provinces from time to time*" (Rodden 2006, 37). Therefore, the elaborated theoretical framework allows to formulate the following working hypothesis:

> ***H.4.1 (federal ideal-type framework):*** *the predominant federal dynamics characteristic of the country under study will impact intergovernmental student aid. In the United States, the centripetal force will have an influence on student aid reforms through the implementation of centralized policies. In Canada, the*

predominant centrifugal force will influence student aid policies through the financing of decentralized policies.

H.4.2 (interaction styles): *The predominant centripetal force in the United States will lead to stronger federal constraints over subnational policies and more attention to the implementation of federal programs compared to the case of Canada. This is likely to keep student aid's system between coordination and centralism. Differently, the predominant centrifugal force in Canada will lead to weaker federal constraints disregarding the effective implementation of federal policies. This is likely to move the system towards decentralism or arm's length cooperation.*

H.4.3 (alternative): *It is likely that the central role will be relevant in both countries and that the Canadian case will not be predominantly centrifugal.*

This chapter differs from the previous ones in that the two countries are considered different in their dynamics, in both the adopted framework (H. 4.2) and the alternative explanation (H. 4.3). Thus, the construction of events provides a historical counterfactual that reveals further differences between the two countries. The chapter complements the previous document analysis with an analysis of intergovernmental agreements, congressional hearings, policy evaluations (e.g. Reports on Student aid), budget plans and also presents data on the levels' fiscal discipline. The thesis complements the CON methodology by adopting the logical reasoning of "Inference to the Best Explanation" or "Abduction" (Harman 2008). The main idea behind it is that the abovementioned hypotheses (4.1, 4.2, 4.3) must not just test the evidence but also explain it. For this reason, section 4.4 will confront a political and economic explanations that can further delineate the pathway between federal dynamics and student aid change.

4.4. Empirical Findings: The Federal Dynamics of Student Aid

4.4.1. Finding: U.S. student aid as a result of a dominating Centripetal force

In this section, I analyze whether U.S student aid governance is a product of the dominant centripetal force characteristic of the U.S federal system. As seen in chapter 3, early student aid programs were established during the 1930s-1950s when the federal preemption power was intensified. This period also marked a growth of the federal role over welfare programs, and a level of federal constraint over the states through its transfers (e.g. federal matching grants). However, the interesting finding is the persistence of such configuration during critical periods that could have weakened the federal role over student aid.

The first critical phase occurred between 1960 and 1975, a period attempting to reverse the federal-state dynamics. In 1965, the minimum standards preemption allowed the states to retain some regulatory power contingent upon keeping the same national standards (The Minimum Standards Preemption Act of 1965). Soon after, the "New federalism" of President Nixon (1969-1974) moved more power from the federal level to the states. Congress started relieving states from certain pre-emption laws, as it also realized its limitations in dealing with expensive welfare programs. For example, the general Revenue Sharing Program (1972-1986) gave power to the states to support social programs, initiate new ones and/or reduce taxes[ii] (State and Local Fiscal Assistance Act of 1972). The move from categorical to block grants also reduced federal constraints on the states. What is more, federal aid was also pulled away from colleges and universities (Higher Education Act, Amendments of 1972). Interestingly, the weakening of the federal power over the states would not affect its role over student aid. Even more strikingly, it is during this phase that the largest federal student aid program (Pell Grants) was established (chap. 3). The data that I analyzed also portrays a growing federal role. In 1975, the federal spent 25 billions in grants compared to an average of 2 billions by all states (in 2018 dollars); which is 11 times higher than the states contributions. Still, the aspect that best captures this mounting central role remains within federal-state interactions. As hypothesized by this chapter (H. 4.2), the two governmental levels coordinated with more attention to the implementation of federal programs. First, this is well illustrated coordinating with the states (over FSEOG, the SSIG and LEAP, see chapter 3). Federal-state agreements also exhibited a high level of federal discretion manifested through the constraining terms of conditional fund-matching, and while ensuring the implementation of national programs.

The growth of the federal role will advance regardless of several bumps in the road, such as when President Reagan proposed to remove the DoED, the core federal regulator of student aid (De Rugy and Gryphon 2004). In overall, the following years marked a simultaneous growth of both federal and state programs, a period of "competitive expansionism"[iii] where both levels were expressing their powers while still defining their limits. During this period, "*states responded by becoming stronger initiators of government services*" (Watts and Vigneault 2000, 9). As illustrated by the gathered data, federal contributions dropped from being 11 times higher than the states in 1975, to twice as much in 2007. Although a closer look at the data shows that state increase (Figure 3.1) can be mainly attributed to the federal-matching incentives (specifically LEAP program). At the same time, federal rule-making over student grew substantively. Therefore, not only the federal level remained a strong regulator for student aid, it continued being the heavier side of the expenditure balance.

The second critical phase started in 2008. The global financial crisis led to an increase in the federal role matched with a temporary retreat of states' role. While the federal level's right arm held the expenditure grip, its left hand lost the coordinating cord tying it to the states. In details, it significantly injected about $40 billion in Pell grants alone and expanded loans' guarantee. In fact, in 2014, I estimated that the federal loan volume was about $119 billion compared to a state contribution of 603 million. On the other hand, the federal level removed federal-state incentives by cancelling the coordinating LEAP program in 2011. Together, these events suggest that under the difficulties brought by the economic crisis of 2008, intergovernmental relations over student aid allowed even more control from the federal level.

All in all, the changing federal-state balance was highly influenced by the predominant centripetal force within the U.S context. The growth of the federal role persisted although critical periods which represented an opportunity to reverse these dynamics.

4.4.2. Finding: Canadian Student Aid in Search of Balance

As seen in chapter 3, the first student aid programs were established under a matching-grant (Dominion-Provincial Student Aid program). This was not unique to student aid. As reported by Moscovitch in his historical review of Canadian Welfare, federal-provincial interactions necessitated some sort of cost-sharing in the first federal pension program (1927), the family allowance program (1944) and for the social unemployment assistance plan (1956) (Moscovitch 2006a, 2006b). At that stage, tolerating the federally intrusive modality of disbursement could have easily been justified by the novelty of the policy, and the mediocrity of initial federal injections. For example, in the absence of primary data, I found a secondary source reporting their loan coverage not to have exceed 3000 students a year (Orlikow, 2018) (I estimate it as less than 15% of the enrolled students at that time). It remained less clear however how the federal level will mold through his role over student aid.

The Dominion-Provincial Student Loan Program would be replaced with the Canada Student Loan Program (CSLP), which was even more infiltrating to the sub-federal jurisdictions (chapter 3). The tension around its implementation is captured in its exaggerated form, through the case of Quebec. Not only the province saw it as violating its autonomy, it threatened to take it to the court, then decided to opt out along with Northwest territories and Nunavut; only to end up receiving federal compensations to run alternative solutions under its sole jurisdiction. What is less documented is the interaction with the remaining nine provinces, leading to their approval of the program. Even more interesting, in the subsequent decades, CSLP would grow to a point of integrating the federal-provincial efforts. Finance Minister Walter Gordon -one of the politicians behind the idea of Student Loans program-described the application of CSLP under a general consensus over students aid but with a tension in its implementation that had to be discussed with each province (Gordon 1983). Since the establishment of CSLP until recent negotiations over federal-provincial loan integration, the predominant modality of interaction was under a low federal discretion.

Although the federal role was intermittent, the federal stretch was more in line with the federal-provincial balancing strategy (h 4.3). During the 1995 financial crisis, some authors reported significant reductions in federal funding towards education (Capano, 2015), but at the same time, lots of money was given to student aid through federal income contingent loans. During this period as well, the federal level introduced the renowned Millennium programs, expanding its role to a point of matching the provincial efforts. The 90s marked strange federal moves but also a notable concern towards an increasing student debt crisis. Federal aid was seen as an opportunity for provinces to solve this issue. But as it is against the expected Canadian federal dynamics, initially, the program had to at least "appear" unalarming. Indeed, it was proposed under a limited timeframe (a 10 years mandate later extended for 2 years). What is more, the program was non-constraining and allowed under arm's length cooperation. Although I could only access one intergovernmental agreement during the program (Nova Scotia), I could confirm the tone of interaction by discussing it with policy experts engaged during the draft of the agreements.

So far, I have shown that the two countries differ in their federal dynamics and the impact of these latter on student aid trajectories. Student aid in the United States is clearly dominated by the centripetal force. Inevitably, federal-state interactions moved between centralism and coordination with a significant level of institutional constraints over the policies. Any attempts of moving power towards the states had to be pulled back towards the center. Canada represented the exact opposite story. While admitting that the federal system is subject to a strong centrifugal force, student aid highlighted the predominance of intergovernmental balance and equilibrium between the levels which was sometimes achieved by allowing a federal role over student aid policies. Accomplishing this equilibrium was manifested through moving between decentralism and arm's length cooperation. Together, these conclusions highlight the relevance of the federal dynamics in both countries as a complementary explanation to the one provided by the role of structures. So far, federal structures provide boundaries within which student aid was designed but which were challenged by this policy (chapter 3). On the other hand, federal dynamics were found to drive student aid change within the constraints of these boundaries (findings 4.4.1 and 4.4.2). What is more, federal dynamics further highlight the differences between the United States and Canada as two ways of manifesting intergovernmental relations. Yet, these conclusions leave us with unanswered questions: *how can we explain the responsiveness of the United States to its overarching centripetal dynamics and the drive towards balance for the case of Canada*? In other words, *what can be the incentives for student aid to abide by these dynamics?*

4.5. The Political-Economic Incentives

Federalism is a configuration of political and economic institutions. Under this logic, federal dynamics cannot transcend from political and economic incentives that define them and influence their change. In this section, I aim to provide a deeper understanding for the political and economic reasons why federal relations could have an impact over student aid.

Political-economic explanations of education policies are still at a primary stage (Fernandez and Rogerson 1995; Garritzmann 2016a). Also, they have yet to account for multi-level change. Therefore, this chapter can only provide the first building brick towards a proper framework for the analysis of student aid policies. This section starts by challenging the existing single-level explanations by striking both the validity of their methodology as well as their applicability to multi-level contexts. Then, it complements the political reading with an economic explanation through intergovernmental fiscal relations.

In trying to explain education policies, the traditional political approach has related education to party preferences through simple, complex and conditional hypotheses (Appendix 4.1). Early neo-institutional studies established an indubitable and global role of political institutions over public policy (Castles 1982; Chappell and Keech 1986; Hicks and Swank 1992; Schmidt 1996; Verner 1979). Initially, the idea of the left's demand-side politics was challenged as unfeasible in an economically globalized world (Alt 1985; Hibbs 1977). Thus, left parties were tending to focus on "supply-side" policies through the encouragement of human capital formation (Boix 1997, 1998; Esping-Andersen 1990). Under this simplified view, left-wing parties were likely to encourage redistributive policies such as education, while the right-wing were expected to be more closefisted. Empirical findings had reinforced this simplified view (Doyle 2012; Garritzmann 2016a, 2016c; Garritzmann and Seng 2016; McLendon, Hearn, and Mokher 2009; Rauh, Kirchner, and Kappe 2011). With a further understanding of complex party families came a more fine-tuned reading of their political impact, such as the ambiguity in the positions taken by liberal parties (Garritzmann 2016c; Smith 1988).

These simple and complex explanation were complemented by conditional hypotheses, suggesting an interaction between party preferences and other variables. In his book *From the Ballot to the Blackboard*, Ben Ansell considered the role of party ideologies in their interaction with veto players. The same author also saw an interaction between party politics and non-political variables such as enrollment. **For example, party preferences depend highly on the level of enrollment. At an elite level, right-wing parties will prefer higher investments on education. When enrollment expands, it is left-wing parties that vouch for higher education subsidization.** This is contrary to what was found in chapter 3 as enrollment only affected federal expenditures in the case of United States (on the detrended data)[iv]. A recent work by Garritzmann (2016b) suggested an interaction of party politics with their positive feedback. In other words, when a particular program expands and creates growing beneficiaries, it makes its retrenchment politically costly, as political actors risk losing electoral votes. In such case, even right-wing parties can abstain from dismantling these programs (Garritzmann 2016b).

While the previous explanations provide an insight on whether political ideas impact subsidizing student aid, they do not clarify whether party ideologies influence the centralization or decentralization of these latter. Intergovernmental dynamics are driven by political actors and hence are likely to result from their ideologies. Some scholars saw the move towards decentralization was associated with a conservative policy orientations, whereas centralization was seen as progressive (Bantig 2005; Peterson 1995). While agreeing that lower level governments will be encouraged by decentralization to seek more power for the sake of power and not to expand the social policy, the arguments of decentralization as pushed by conservatism were criticized by Alain Noël as being weak and unsubstantiated (Noël 1998).

While political ideas explanations provide an insight on actors' incentives, it is absurd to think that responsibilities would have nothing to do with the resources available for the government. In an ideal federal world, each level of government would maintain revenues corresponding to its spending functions. Not only it tightens the relationship between costs and benefits, it provides transparency in knowing that those who spend are the ones with the biggest purse. The problem is that the decentralization of expenditures does not go hand in hand with the decentralization of revenue, and this creates imbalances between what a unit has, and how much it should spend.

This specific gap between the levels constitutes one of the primary incentives for why governmental levels interact to start with. For this reason, fiscal federalism is an important pillar that can be considered both as a policy instrument and an institution itself. As federal scholar Lazar stated, "*Fiscal federalism is about how expenditure and revenue-raising responsibilities are allocated among the different orders of government in a federal political system. In so doing, it is both instrumental and quasi-constitutional in its effects*"(Lazar 2005, 3). It is an instrument as it serves to reach specific policy goals through the rearrangements of revenues and expenditures. It is also an institution as it is a set of formal and informal rules that govern fiscal interactions within federal systems. As stated in chapter 2, the SGT sees that the very definition of a governmental jurisdiction as inseparable from its fiscal independence. In this elaborate, I focus on the problem of "fiscal imbalances" as a possible incentive for reshuffling student aid intergovernmental interactions. Imbalances can be defined as:

- Horizontal Fiscal Imbalance (HFI) represents the difference between revenues and expenditures among the subunits.
- Vertical Fiscal Imbalance (VFI) represents the imbalances created between the levels. It is a direct result of the asymmetry between the tax and spending assignments towards each level but does also result from the imbalances within each level. Put simply, the gap between each level's revenue and spending can enhance or reduce the gap between the levels.

The United States and Canada differ significantly in their fiscal federal practices. Canada's policy exhibits more integration as evident through its longer experience with intergovernmental tax-sharing. What is more, the composition of the federal budget differs between the two countries and so does the position occupied by student aid. The Canadian's expenditures on welfare is more centered on old age and family, while the equivalent in the U.S would be on dependent children programs. Related to the budget composition, National defense spending posits a higher toll on the United States federal budget compared to Canada. Hence, not only the gaps created within and between the levels are going to be different, they are likely to trigger different burdens and expectations from the central level's role over policies, and student aid might as well be impacted. The literature also suggests different policy solutions employed to close or at best reduce those fiscal gaps. Among them, expenditures can be moved to the central level, or the federal level can use fiscal transfers towards the subunits[v] (Craig and Ehtisham 1997) . In this chapter, I hypothesize that intergovernmental student aid can be designed within this incentive where either the level with the highest resources will be assigned more responsibilities towards this policy, or the policy will serve to compensate for existing fiscal imbalances. Thus, along with this suggested political-economic explanation, the posited question is: *Could the intergovernmental assignment of student aid functions be explained by the predominant federal party ideology and/or by vertical fiscal imbalances?*.

4.5.1. Finding: The Inconsistent Party Positions on Student Aid policies

In this section, I demonstrate that party positions at the central level do not hold consistent preferences over student aid matters. This is not to say that party preferences are not influential. Instead, it shows the lack of a political consensus over this policy, which is aligned with the contradicting ideologies and functions that this policy play, but also its marginality within the political agenda. In this section, I manage to confute the results of other studies thanks to the comparative methodology.

First, I admit that, on several occasions, the influence of federal student aid programs was advanced under the influence of left-wing parties. As a start, the literature likes to reiterate classic examples, such as that the G.I bill is passed under President Roosevelt, leading a Democratic majority; or that its extension, in the 1952 Korea G.I. Bill, passed under the Democratic President Harry S. Truman[vi], controlling a unified Democratic congress (Garritzmann 2016b). Another example often present in literature is how loan programs were consolidated under the Democratic President L.B. Johnson's agenda of "Great Society" – and its large Democratic majority in both chambers of Congress (Gladieux and Wolanin 1976, as cited in Garritzmann 2016b). Furthermore, the 1978 Middle Income Student Assistance Act, which increased non-repayable grants, was again seen as approved because of the Democratic term of President Jimmy Carter[vii] (Garritzmann 2016c). A recent example still within the collective memory is the motivation of President Barack Obama towards increasing federal student aid[viii] especially while facing a strong opposition by the Republicans and lending institutions[ix] (Garritzmann 2016b; Mettler 2011). By the same token, many agree that right-wing parties are unfavorable to student aid. One typical example found in the literature is how the Republican administration of President Reagan (1981-1989) reduced expenditures on student aid, and was consistent in proposing budgetary cuts for nearly every year of its term (Coomes 2000; Eaton 1991; Garritzmann 2016b).

Nevertheless, I found numerous examples that disconfirm the steadiness of party positions on the long run. The National Defense Education Act, introducing federally guaranteed loans, was passed under a strong conservative opposition to student aid (National Defense Education Act of 1958). Also, one of the most generous federal grant programs (i.e. Pell Grants), and the federal-state matching-schemes (e.g. LEAP) (chapter 3) were passed under Republican President Richard Nixon. Recently, Republican Donald Trump (2017-incumbent), with a strong Republican support, eliminated the taxability of different student categories[x], and within the Budget Act of 2018, his administration extended the tuition and fees deduction for taxpayers to curtail their taxable income by up to $4,000 for college tuition and related expenses (Budget Act of 2018).

The chosen comparative method allows to compare the United States' experience with another country all while providing empirical information on a case often dismissed by student aid literature. In Canada, much like the G.I Bill, the VRA (Veterans Rehabilitation Act OF 1945) was accepted under Liberal PM WLMK[xi] who held a center-left vision on social policy. However, from the 1950s, Canadian party position over student aid will be overly confusing. Progressive Conservatives under PM John Diefenbaker (1957-1963) highly subsidized higher education and vocational training. Student aid was not part of the Red Tories' agenda, but they might have been easily persuaded by the high unemployment rates as suggested by the Massey Report (1951). At the same time, Liberal PM Lester Pearson (1963-1968) was equally favorable to student aid, introducing federally guaranteed low-cost student loans (CSLP). So did the Liberal PM Pierre Trudeau (1968-1979), who subsidized aid for occupational training. Party preferences continue to take puzzling positions. In the 80s and 90s, ideas surrounding income repayment conditions were advanced by both Progressive Conservatives and Liberals[xii]. The first proposal came under Conservative PM Brian Mulroney (1984-1993) who also controlled a Progressive Conservative majority. But the very same right-wing approach will also be later advanced by Liberal PM Jean Chrétien (1993-2003), who even advocated ferociously for this policy[xiii]. No wonder, in 1998, the introduction of the generous Millennium Scholarship would look like a political illogicality to most policy analysts at that time. Even more confusing, the Conservative PM Stephen Harper would advance the Millennium by creating the Student Grant

Program, furthering any doubts about the real intention behind this program. Not only that, Conservative PM Stephen Harper (2006-2015) will also increase funding for the CSLP (Canada. Dept of Finance 2008). To end it nicely, his administration lowered the requirements for financial grants and expanded the training programs eligible for the governmental help (Canada. Dept of Finance, 2015). All in all, in the long run, at the federal Canadian level, party positions remained inconsistent if not puzzling.

What can be drawn from this reconstruction – and is left out unsaid in the existing literature- is that most efforts advanced by the Democratic agenda at the federal level disregarded the involvement of the states. Contrarily, even when I argued a generosity under Republican administrations, this could be read beyond their openhandedness towards students. As shown by chapter 3, the above-analyzed events under U.S Republican administrations were all reinforcing a federal hierarchy and encouraging its spending power over the states. In the Canadian case, this was more perplexing as CSLP and the Millennium Scholarships were advanced under a liberal and conservative agenda, respectively. At this stage, I decided to investigate *whether party preferences operate under more restraining fiscal federal incentives*; in simple words, *whether political actors channel their interest through more overarching federal institutions such as the case for fiscal federalism*.

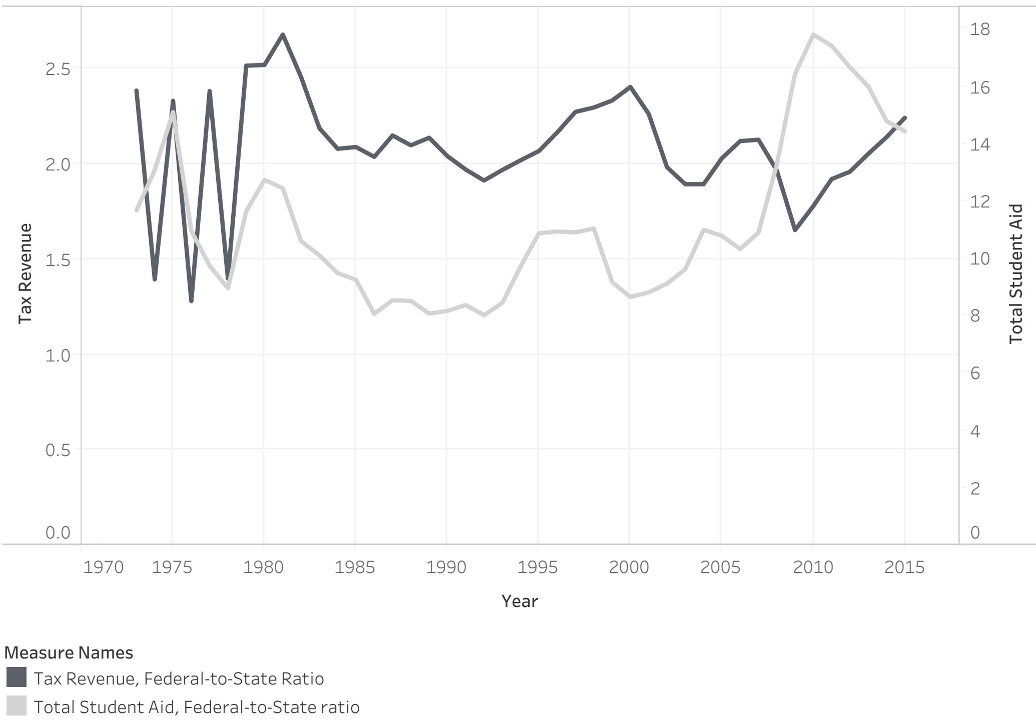
4.5.2. Finding: Student aid as a result of the U.S fiscal imbalances

In this section, I argue that the federal-state movement of student aid expenditures can be embedded within a federal strategy of closing the fiscal gap between the levels.

When early federal student aid programs started (1930s), there were no serious fiscal imbalances between revenues and expenditures at the federal level. As reported by Jeffrey Miron "*some policies adopted during the Depression implied higher expenditure on average (e.g., unemployment insurance) but not an ever-increasing expenditure relative to GDP*" (Miron 2016, 25). In this period, the federal government had about a third of the total government revenue while no federal grants were given to the states (Gonzalez-Eiras and Niepelt 2016). Hence, it was easy for the federal level to just reach

Figure 4. 1 Fluctuations of Federal-to-state student aid with Federal-to-state tax revenues

Sources: IMF, College Board, Author's calculations



to its purse and invest generously on student aid. Between the 30s and 40s, the situation improved to the favor of the federal level. Federal revenues (majorly coming from income taxation) doubled. Consequently, the overall federal expenditures started rising to about 45% of GDP (Schuyler 2014). Among these expenditures, federal grants towards the states became the states' major source of revenue (Gonzalez-Eiras and Niepelt 2016). In overall, the increase in social expenditures was under control and revenue collection was centralized.

In finding 4.4.1, I argued that the 1960s were a critical period as it could have led to a reduction in the federal role over student aid, but that in reality, this latter expanded. Interestingly, fiscal imbalances were highly favorable for such expansion. The prominent fiscal change in the period was the Johnson's tax reforms (Revenue Act of 1964) where the top marginal tax rate decreased from 91% to 70% and the corporate tax rate was reduced from 52% to 48%. These changes has led to a significant growth in federal revenue[xiv] reported to have raised from 94 billion in 1961, to 153 billion in 1968 (Morrison 2013). Consequently, education, healthcare, pension and welfare expenditures were all simultaneously increasing.

The availability of student aid data from year 1970 allows a visual comparison of both levels' spending with their tax revenues. By investigating their distribution among the federal and state levels, two major conclusions are drawn. In the 1975-2008 period, figure 4.1 shows that student aid and tax revenues were perfectly overlapping, indicating that the locus of student aid (i.e. federal or state) depended majorly on where most tax revenues were collected. The persistence of the federal level can also be explained by the gap between the level's fiscal imbalances. Let's take the 1994-2008 period for example. While central fiscal imbalances were negative (meaning that their revenues exceeded their expenditures), the opposite was true for states (Appendix 4.2). Therefore, the federal level continuously increased its expenditures in line with closing the gap created by the two level's imbalances.

Taken together, these findings show that, in the long run, student aid simply came from the largest pocket, with a goal of closing any existing vertical fiscal gap between the two levels. The second policy, in line with the first, is a specific interventionist role of the federal level during 1973 and 2008. Fascinatingly, during these two periods, the federal level increase of student aid went against the locus of the collected tax revenues. Figure 4.1. shows that federal student aid increased between 1970 and 1975 regardless of the decrease in federal tax revenues (relative to the states)[xv]. In 2008 as well, federal student aid increased despite the trend followed by tax revenues (relative to the states).

The federal reaction to the 2008 crisis indicates a federal responsibility towards the policy that went beyond its fiscal health, but was still in line with closing the created fiscal gap. Although both levels were facing major fiscal deteriorations accumulated since

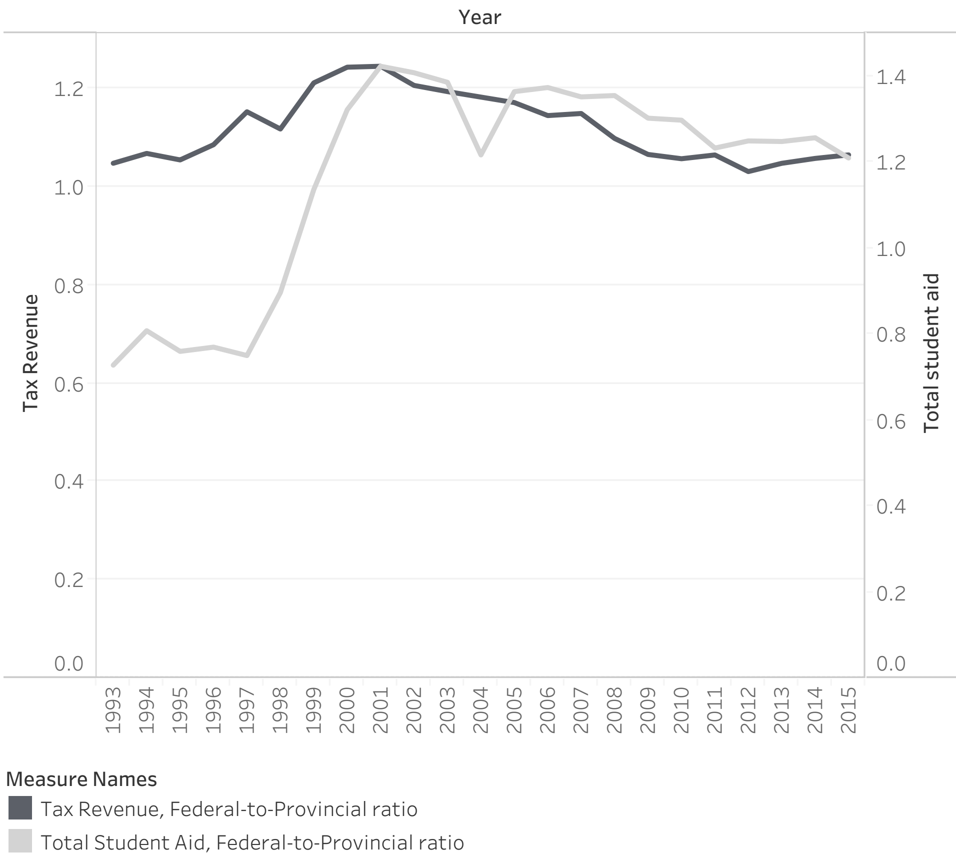
2000, the states were in “bigger” fiscal difficulties, majorly attributed to healthcare expenditures[xvi]. Indeed, in the 2008-2012 period, both central and state imbalances were positive (meaning that their expenditures exceeded their revenues). Nevertheless, the gap created by the two levels clearly shows that state imbalances exceeded the central one. Adding to this, states are more limited in their government indebtedness and cannot go in deficit. All in all, the correspondence between student aid and the fiscal imbalances provides a solid reading for federal-state distribution of resources manifest in the theoretically expected centripetal force.

4.5.3. Finding: Student Aid as a Result of the Canadian’s Balancing Strategy

During the establishment of early federal student aid programs (i.e. the 1930s), the federal level was the one gathering most revenues mainly because it occupied the collection of personal income taxes. In the early 1950s, federal and provinces managed to reach a relative balance, as provinces occupied 55% of all government expenditures. Soon after, provinces started facing a significant increase in their spending, mainly on motor vehicles, highways and the expansion of provincial social programs. This increase was reported to have moved from being less than 5% of GDP to 15% in 1955[xvii] (Lazar 2005). **Therefore, the spending burden was faced by both levels and two** solutions were taken to face the asymmetry between the generous federal revenues and the overgrowing provincial expenditures; which majorly influenced student aid. The first was expanding provincial revenues through further tax occupations (e.g. mining, on real property, etc.). It is subsequent **to this expansion that provinces will manage early provincial student aid programs.** The second was manifested in the growth of federal grants towards provinces, reported to have increased from being 9% of provincial revenue in 1930 to 26% in 1938 (Lazar 2005). **This balancing solution explains the cost-sharing modality of student aid, as previously argued (chap. 3).**

Figure 4. 2 Fluctuations of Federal-to-Provincial Student Aid with Federal-to-Provincial Tax Revenues

Sources: IMF, CMEC, Author's calculations



The federal control over income taxes as well as its role in federal transfers gave it the fiscal upper hand for few following decades. In the subsequent period (1945-1973), the country would enter an expansionary period of GDP, employment and population growth. **Consequently, both levels of governments will enlarge thei social policies. With regards to the federal level, it** significantly enlarged its social policies (including unemployment and pension), and the composition of the federal spending shifted radically from being predominantly directed to good and services to becoming dominated by transfers. **The federal level also took the role of equalizing between provincial disparities; for example through the National Adjustment Grants.** When it comes to the provinces, in such a short period, their spending grew significantly to account for about 68% of total governmental spending in the 1970s (Lazar 2005).

The subsequent period (1970s-90s) marked a considerable reduction of federal role over student aid, at the expense of growing provincial programs. During this phase, a critical deficit was registered at the federal level, leading up to the accumulation of federal debt by the 1990s. The national strategy during these decades was one of reducing federal expenditures. For example, one of the solution was the creation of the Canada Health and Social Transfer (CHST), which aggregated healthcare with social transfers in one single grant in a way that concealed major reductions in their singular amounts. Indeed, provincial reliance on federal transfers dropped from 20% in 1973 to about 15% **in 1995 (as reported by data in Statistics Canada**[xviii]). Consequently, as federal transfers were condensed, the federal level managed to restore surpluses in its budget.

The collected data on student aid for the 1994-2015 period allows a direct comparison between this policy and the tax revenue of the two levels (figure 4.2). Similar to the United States, a strong relationship appears between the two distributions **revealing one strategy of balancing between the two levels.**

The first relevant period is marked between 1993 and 2000. As figure 4.2 illustrates, federal-to-provincial ratio started increasing around the 1998 which can be directly related to the establishment of the federal Millennium program (see chap 3). **The previous chapter highlighted how the political explanation surrounding this program was puzzling (finding 4.5.1). Instead, fiscal imbalances provide a more sensible clarification. For the preceding two decades, as the federal level was facing the aforementioned deficit, provinces were left with reduced federal transfers, while facing growing expenditures. So if the CHST was created to camouflage reductions in federal transfers, this period marked its relative increase and a stabilization of the long declining trend of Equalization payments (Department of Finance,**

Statistics Canada)[xix]. Hence, reforms can be read as an intervention from the federal level to close the created federal-provincial gap due to the increase in provincial VFI (meaning that provincial expenditures were higher than their revenues) (Appendix 4.2). Furthermore, during this period, a major reform will change the modality of transfers related to Health and Post-Secondary Education from cost-sharing into block funding, enhancing federal contribution whilst maintaining more freedom for the provinces. As stated in the 1995 budget plan:

> *"Established Programs Financing (EPF): Health and Post-Secondary Education. In 1977, federal transfers that formerly had been tied to provincial spending for health and post-secondary education were converted to a "block" transfer, consisting of cash and the value of income tax points given up by the federal government at the time. Although the labels of "health" and "post-secondary education" have been retained, provinces have in act been free to spend these transfers according to their own priorities – there is no requirement for the federal EPF transfers to be spent on education, or on health, so long as the principles of the Canada Health Act are met"*
>
> Department of Finance, Canada. 1995, p51-52

This was yet another strategy to restore the fiscal gap between the levels and has directly impacted student aid. In 1998, when the Millennium project will be proposed, scholarship was given under this new transfer modality, which aligns with the national policy of balancing the fiscal health between the level.

The second relevant period is marked by the decline of the federal role after 2000, which can also be explained within the same balancing strategy. In this period, both federal student and tax revenues will start dropping relative to the provinces. At the same time, the gap between the two ratios will be reduced (figure 4.2). **It is equally important to note that a general decline in federal tax revenues did hinder federal**

interventions. Differently from the United States, the federal level did not assume an interventionist role that challenged its fiscal health. Indeed, after the 2008 crisis, federal student aid programs had generally continued to drop, but remained in line with balancing the fiscal health of the two levels.

4.6. Discussion

The interest in federal dynamics has been an integral part of recent federal discussions (chapter 2). Aligned with this theoretical recognition, this chapter provides a reliable reading of decades of intergovernmental student aid through the lenses of federalism. Thinking about student aid through federal dynamics is thought-provoking as it puts student aid change as a result of entrenched political and economic federal institutions; instead of being majorly responsive to students' related variables. At the same time, it is relevant to the federal scholarship as it shows two federal systems operating under different underlying dynamics.

The empirical findings can be summarized in the following. The United States was found to be a typical example of the "balanced system" ideal-type as suggested by Colino (2013), where the movement of power is majorly centripetal, making it incongruent with the formal framework (centripetal and disintegrated). In finding 4.4.1, I showed a persistence of the federal role despite critical periods where its hierarchy over student aid risked being reversed. During these periods, the federal level interacted with the states through coordination, maintaining high federal constraints and managing to further the implementations of its national policies. By contrasting political and economic incentives behind this centripetal force, intergovernmental student was related to a national policy of reducing the fiscal gap created between the tax revenues of the two levels. The federal level also assumed an interventionist role during the 1973 and 2008 crises. Comparatively, intergovernmental student aid in Canada was not always centrifugal as expected by the adopted theoretical framework (H. 4.1). Instead, the two levels were more driven **by the goal of achieving a balance between them**. As a result, allowing a federal role was no smooth sailing, and intergovernmental tension was often resolved through arm's length cooperation. Differently from the United States, the intermittent federal role over resources is congruent with their **resource** integration, as found in chapter 3. Similar to the United States, party positions at the federal level did not provide a solid explanation to the intergovernmental distribution of student aid functions. What is more, the same policies were at times advanced by both liberals and conservatives. Similar to the United States, fiscal federalism provided a more substantial explanation, showing a stable connection between student aid efforts and a long term fiscal strategy of balancing the levels' revenues.

The above-reported explanations merit further discussions. The relevance of the fiscal federal explanation lies within a more historically-rooted understanding of the countries' fiscal strategies and their substantial differences. This aligns perfectly with the idea that economic interests are also channeled through long-established institutions (chapter 2, conclusion). The Canadian experience of fiscal federalism could manage some integration between its levels as it has experienced longer with federal-provincial tax sharing and federal equalization. Under these economic institutions, sub-sector policies might easily exhibit a move from the political centrifugal force -where tension falls on sovereignty rather than policies- to prioritizing fiscal balance. As reported by the U.S Advisory Commission on Intergovernmental Relations:

"*the major message to be drawn from Canadian experience is the absolute necessity for either bending or suspending the principle of fiscal responsibility if a Federation is to strike a tolerable balance between intergovernmental revenue requirements and expenditure responsibilities. If Canada had clung tenaciously to the doctrine that he who has the pleasure of spending tax dollars must bear the full political gain involved in raising them, the fiscal mismatch in Canada would be as bad as ours (the United States).*"

(United States. ACIR 1971, 6)

When comparing the United States and Canada, the tax autonomy of provinces is substantially greater than the U.S States (Papillon et al. 2015), suggesting the central level will have more incentives to bail out subunits in the

former case than in the latter (Rodden 2006). In fact, it was the U.S central level to be found more committed to intervene on student aid in times of crisis (1973 and 2008), and that under two different political agendas (Republican and Democratic, respectively).

The inconsistency in the role of political institutions also merits further investigation. First, the absence of a direct measurement of party ideologies over student aid issues limited our understanding of their real positions. Also, the analysis done solely at the federal level was justified as a first approach in line with existing researches on education politics. It also rendered the analysis feasible on a longitudinal scale. However, it left us with an incomplete picture on what is politically happening at the level of the subunits. Indeed, the impact of political parties within federal contexts should be seen as a result of complex party linkages between the levels rather than a unilateral influence from the center. This is even more true when comparing two countries that differ in their political locus, as Canada has a stronger position of provincial leaders than the States. Thus, an alternative explanation could be found within the interaction between political parties at federal and sub-federal levels.

Thus, taking the findings of chapters 3 and 4 together, we are left with several fundamental questions: *Could structures and dynamics explain student aid specific to singular federal sub-federal interaction? Does the fiscal explanation hold true for subunits with different fiscal policies? Can intergovernmental political linkages provide a better explanation than party position at the federal level? And does the fiscal explanation transcend the political one*?

Appendix 4

Appendix 4.1

Table 5.3. Political hypotheses generated from the existing literature on education policies
Hypothesis 1(Simplified): left-wing parties, in globalized economies, spend more on higher education compared to right-wing parties.
Hypothesis 2 (Simplified/rival): When higher education is regressive, right-wing parties spend more on higher education compared to left-wing parties
Hypothesis 3.a (Complex): *liberal parties have different positions depending on the branch they belong to (and which can be left or right oriented).*
Hypothesis 3.b (Complex): Conservative parties were found not to invest on public education
Hypothesis 3.c (Complex): Social democrats are more inclined to spend on education than far left parties
Hypothesis 4 (Conditional on enrollment): When enrollment is low, right-wing parties increase/favor spending while left-wing parties limit/oppose spending. When enrollment is high, right wing parties limit/oppose spending while left wing parties increase/favor spending
Hypothesis 5 (Conditional on taxation and inequality): *Progressive taxation will stimulate increased levels of higher education spending, with this effect amplified by the level of inequality*
Hypothesis 6 (Conditional on institutions): Veto players will reduce spending on student aid

Appendix 4.2

Vertical Fiscal Imbalance (1- ratio of own revenue to own spending)

Country	**Canada**	**Canada**	**United States**	**United States**
Sector	Central Government	Provincial Government	Central Government	State Government
1990	-0.001585951	0.084462277	0.12538659	
1991	0.015237016	0.153428293	0.182330137	
1992	-0.007862688	0.189971416	0.109924746	
1993	0.016882625	0.161944309	0.039853853	
1994	-0.013047921	0.099947871	-0.037920037	
1995	-0.054513185	0.075070892	-0.118302343	
1996	-0.129253855	0.021378177	-0.173013854	
1997	-0.295871988	-0.008810356	-0.278247351	
1998	-0.307509857	-0.00541347	-0.376758277	
1999	-0.355551749	-0.038136914	-0.409401606	
2000	-0.416380786	-0.04206333	-0.507904911	-0.285881494
2001	-0.38209351	0.045822286	-0.383173686	0.250078264
2002	-0.344008709	0.067499412	-0.141823173	0.283616243
2003	-0.354283316	0.061824536	-0.037528957	0.287867348
2004	-0.38576968	0.024239766	-0.037132012	0.27460272
2005	-0.433788409	-0.0038973	-0.115395804	0.246812605
2006	-0.460109083	-0.005948924	-0.220296099	0.225712346
2007	-0.491490864	0.020283932	-0.199840243	0.237676497
2008	-0.44499699	0.063071933	0.033481777	0.269163073
2009	-0.263189761	0.155371296	0.254977702	0.327278262

2010	-0.241953325	0.171469254	0.207096801	0.319882606
2011	-0.301054186	0.149372156	0.118752715	0.292137962
2012	-0.334030989	0.129034187	0.024618229	0.272934434
2013	-0.389828701	0.107823886	-0.191095094	0.256065518
2014	-0.521171826	0.075648561	-0.229001501	0.255822812
2015	-0.498892981	0.088366884	-0.295157297	0.253986099
2016	-0.413581747	0.094290969	-0.227689865	0.258693862
2017	-0.41258705	0.089502502		

Data source:

To account for Vertical fiscal imbalances, I am relying on the IMF data which provides differences between grants/revenues for the same level. The reported Vertical Fiscal imbalances are measured as the difference between own expenditures and own revenues, as a proportion of own expenditures.

The vertical fiscal imbalance in the table is provided for each singular level and is calculated as follows:

Let r_S be the state government revenues
Let g_S be the state government expenditures

$$\mathbf{VFI = 1 - (r_S / g_S)}$$

Thus

if the VFI > 0 means that $g_S > r_S$ (expenditures are higher than revenues)
if VFI <0 means that $r_S > g_S$ (revenues are higher than expenditures)

As this data might already be accounting for student aid expenditures, tax revenues were used in the chapter's analysis while the measurement of the vertical fiscal imbalance presented a complementary reading to the gap between the levels. It is important to note that that the comparison between the federal and sub-federal levels has to account for the difference in the marginal cost of raising tax revenue between the two levels. This is because tax bases available to states are not necessarily more costly on the margin than they are for federal level.

NOTES

[i] I exclude the interacting style of competition as it mainly reflects the absence of coordination, and was used to describe market-oriented styles of interaction, or with a focus on horizontal relations.

[ii] By reviewing the act that authorized the program (State and Local Fiscal Assistance Act of 1972), student aid was basically excluded from the benefits as beneficiaries excluded full-time enrolled students.

[iii] See Simeon et al (2014).

[iv] Ansell's focus on the progressive taxation and high inequality aspects of education led him to hypothesize that *"When income independence increases, left-wing parties will sooner favor increased subsidization and quality, and all parties will favor higher enrollment"* (Ansell 2010, 180).

[v] The other two solutions are: 1) moving taxes to the level who needs money the most, and 2) raising taxes and lowering expenditures until a balance is reached.

[vi] Some authors argued that Truman's intention was to expand enrollment to non-veterans (Coomes 2000 as cited in Garritzmann 2016a)

[vii] "*What was most important, however, was that passage of MISAA added a new, and vocal, group of supporters to the financial aid programs. These families, and their children, would see student aid as an entitlement, a set of programs in which they had a right to participate*" (Coomes 2000: 11).

[viii] In a memorable speech addressed at the University of North Carolina, President Barack Obama stated: "*This is something Michelle and I know about firsthand. I just wanted everybody here to understand this is not—I didn't just read about this. I didn't just get some talking points about this. I didn't just get a policy briefing on this (...) when we graduated from college and law school, we had a mountain of debt (...) For the first 8*

years of our marriage, we were paying more in student loans than what we were paying for our mortgage. So we know what this is about" (Obama, 2012).

[ix] "*The banks and the lenders who have reaped a windfall from these subsidies have mobilized an army of lobbyists to try to keep things the way they are*" (Obama, 2009).

[x]The taxability was eliminated for loans of families after death and for individuals after permanent disabilities (Tax Cuts and Jobs Act of 2017).

[xi] William Lyon Mackenzie King.

[xii] Initially, the idea of income repayment was borrowed from Milto Friedman, an American conservative advisor who had been advocating for transferring the cost of education to students since the 1950s.

[xiii] The Canadian Federation of Students was highly opposing this policy.

[xiv] It is to note that the arithmetic effect of tax reduction does not always correspond to their economic effect. This is why tax reduction does not necessarily lead to a reduction in revenues (laffer curve).

[xv] The opposite trends followed by tax revenue and student aid in the late 70s can be explained by their different rates of recovery.

[xvi] Since 2000, federal revenues dropped significantly, consequent to the tax reforms by President Bush in 2000, concomitant with the 2001 crisis. The federal level also faced an uncontrollable growth of mandatory spending, specifically due to the growth of Medicare, Medicaid and other health programs. As reported by Jeffery Miron: "*Overall, the main drivers of America's fiscal deterioration appear to be the ever-growing costs associated with Medicare, Medicaid, and other health programs. Whereas Social Security has accounted for a relatively constant share of expenditure in proportion to GDP, Medicare and Medicaid costs have been growing as a ratio of GDP for the past four decades. This growth is what makes the country's fiscal path unsustainable*" (Miron 2016, 21). Since 2000, the federal government went back to large deficits again and the fiscal imbalance

worsened with the Medicare Part D, the expansion of Medicaid under the Affordable Care Act of 2010, and the increase in defense spending, veterans' benefits and energy programs. When it comes to states, healthcare expenditures has been overly reported as the major culprit to negatively influenced state investments on higher education (Orszag and Kane 2003). Until today, perturbing debts are projected to continue impacting states like California and New York (Wambugu 2019) limiting the states' ability to borrow.

[xvii] See also the data from Statistics Canada, retrieved from: https://www150.statcan.gc.ca/n1/pub/11-516-x/sectionh/4057752-eng.htm

[xviii] Retrieved from Statistics Canada, Cansim II, matrices 3800033, 3800034 and 3800035

[xix] Historical tables on equalization programs can be retrieved from Statistics Canada: https://open.canada.ca/data/en/dataset/4eee1558-45b7-4484-9336-e692897d393f

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5. What about Deviant States and Provinces?

Alaska, New York, Prince Edward Island and Quebec in Comparison

5.1. Introduction

This chapter further discusses all previous findings. So far, the generated results were based on an average-case approach to student aid without considering possible variabilities between the subunits. In reality, states and provinces vary significantly across different background conditions (e.g. size, population). Also, the literature suggests key differences in their student aid policies (Berger and Baldwin 2009; Junor and Usher 2007; MacLaren 2014; Yuliani 2009). Hence, **the more they divergence from the average, the more it will be challenging to confirm the previous findings**. In this chapter, the main questions are *whether there also exists intergovernmental variation among the subunits?* and *whether federal institutions can still explain this latter?*. For this reason, this chapter analyses singular federal-state interactions in Alaska, New York, Prince Edward Island and Quebec, considering them as deviant cases.

The chapter starts by investigating federal-state interactions through two previously analyzed dimensions: 1) the degree of integration between the levels (through a federal hierarchy, intrastateness and the co-dependency between the levels) and 2) the dynamics that maintain this integration/disintegration, along with the political-economic incentives. I posit three fundamental questions:

RQ 5.1. *Could federal institutions (structures and dynamics) explain students aid trajectories in deviant states and provinces?*

RQ 5.2. *If so, what could be the political-economic incentives?*

RQ 5.3 *Are there more similarities within or between the countries?*

The empirical findings are provided in section 5.4 through both qualitative and quantitative data analyses.

5.2. Case Study Selection

Political Science provides ample techniques for cross-case comparisons under small-n case studies (Gerring 2007; Gerring and Cojocaru 2016). Intending to answer the previous research questions, I use a most-different strategy to account for differences within each country. In doing so, I select two embedded deviant cases within each country while maximizing the distance between them.

Undeniably, the choice of specific states and provinces widens our case-specific knowledge. They are also a significant way of finding possible causal pathways connecting the variables. Specific to this study, single-cases also enabled me to collect and use more comparable data. More interestingly, the specific choice of deviant cases adds major value to the study. The previous findings' validity would be highly enhanced if applicable to deviant cases as they are the least expected to confirm the posited hypotheses. Besides, deviant cases provide a better illustration of the countries' distributions as they stand at their extremes. Last and not least, deviant cases might reveal "unusual causalities" and uncover relevant variables unknown to the average case (Seawright 2016).

The chosen cases are considered deviant based on their differences in the background conditions (Z) – which might be influential for the dependent variable (Y). In details:

- New York and Quebec are one of the largest units in their countries, with one of the biggest GDP per capita and the lowest unemployment rates. Both had developed successful and decentralized student aid policies, considering their largest rates of student enrollment.

- Alaska and Prince Edward Island are deviant cases in that they are one of the smallest units in their countries, with one of the lowest GDP and highest unemployment rates. Both subunits had developed modest student aid programs because of their size and high out-of-state/province mobility.

Since deviant cases are purposefully chosen to falsify the impact of federal institutions, I expect similarities between student aid among units with the same background conditions (e.g. Alaska and Prince Edward Island). Another likely scenario, which is an added value by the deviant case methodology, is that these units might be influenced by atypical institutional structures and dynamics (the so-called "revealed causal heterogeneity" (Seawright 2016)).

5.3. Refining the Political-Economic Framework

Based on the previous chapters' findings, the following hypotheses are formulated:

> *H 5.1 (null): Subunits will differ as a result of their background conditions. Thus, more similarities will be found between New York and Quebec, and between Alaska and Prince Edward Island than within the countries.*
>
> *H. 5.2 (neo-institutionalism): Intergovernmental student aid will be influenced by major federal structures and dynamics. In both Alaska and New York, student aid will be highly intrastate, with a dominant federal hierarchy and weak codependency of resources; while intergovernmental dynamics will be predominantly centripetal. In Prince Edward Island and Quebec, the hierarchy of rule-making is weaker, but the codependency over resources is likely; while intergovernmental relations will tend towards a state of balance. Hence, there will be more differences between countries than within them.*

H. 5.3 (alternative): Intergovernmental student aid will be influenced by atypical federal institutions reflecting different intergovernmental relations within the same federal system.

This chapter also aims to refine the political-economic explanation provided in chapter 4. Governmental levels were shown to adhere to national-level incentives, such as party preferences and interests in closing the fiscal gap between the levels. The latter was found to provide a more consistent reading to student aid in the long run. These hypotheses were useful as a first macro-level understanding of student aid. However, they remain limited in that they assume relationships to be unilaterally dictated by the centre, and hence, cannot account for distinct subnational behaviour. In this chapter, the contrast between control and institutional factors provides two equally possible determinants of subnational student aid spending.

Control factors include principles of efficiency and equity (Musgrave 1959; Oates 1999). As suggested by the First-Generation Theory of fiscal federalism, the former can be achieved by targeting subunits with a consideration of their marginal demand for student aid. Accordingly, federal grants towards student aid might be used to foster spending in small units (Alaska and Prince Edward Island) or to guarantee similar access to student aid in the ones with higher tuition fees. In this sense, both tuition and enrollment will signal to the federal level the subunits most in need of student aid transfers. According to the second principle (equity), the federal level is expected to target state/provinces with the lowest per capita income. Again, the slowest track units (e.g. Prince Edward Island) would be expected to receive higher federal help towards their student aid; all relative to their level of enrollment and tuition fee.

Nevertheless, recent studies are finding that federal allocations are not always aligned with these normative directions. Indeed, the Second Generation Theory of fiscal federalism considers fiscal factors in their interaction with political institutions. For example, the literature tests the competitive electoral hypothesis under the logic that central governments will allocate more grants to subunits with high support for their winning party (Cox and McCubbins 1986; Grossman 1994; Kemmerling and Stephan 2010; Levitt and Snyder 1995). This variable can manifest in the alignment between the federal and sub-federal agendas, or through the subnational shares of votes towards the national governing parties. In summary, the suggested political-economic explanation argues that central allocations can either respond to normative factors (efficiency and equity) or to party strongholds and intergovernmental party alignments. Hence, I posit the following hypothesis:

> *H. 5.4 (political-economic explanation): Central governments will send transfers to the states/provinces (1) if there are fiscal imbalances to correct for, (2) if the subunits show strong party support to the central party (3) if there is an alignment with the central political ideology.*

It remains unclear whether the political and economic explanations interact, or whether one of these incentives can override the other. A similar question was tested by asking whether federal aid transfers are tied to correct market or political failure. The authors of this study found that aid is first allocated towards tackling states fiscal pressure, and only then the political interest is expressed (Craig and Inman 1982). Such explanation aligns with the thesis' theoretical propositions, as it hypothesizes that actors' interests will be ultimately channelled through deep-rooted federal institutions. At the same time, it aligns with the previous empirical findings suggesting an inconsistency of party preferences over student aid and a strength to the fiscal federal explanation.

3.1.**The Impact of Federal Structures and Dynamics**

5.4.1. Finding: The disintegrated Structure and Centripetal Dynamics in both New York and Alaska

New York and Alaska differ significantly in their size, geographical location, but also macro-economic variables, such as their GDP per capita and unemployment rates.

When it comes to student-related variables, the two states also differ in their level of enrollment and study attainment. They are on the opposite spectrum of students' debt; and although on the bottom quintile of tuition fees, they differ in tuition increase rates[i]. However, it is still unknow how the two might differ in their intergovernmental student aid relations.

While reviewing the case of New York (NY), it became clear that this state has had a long history of encouraging higher education access. It was one of the first states in the U.S history to have established a state grant program in 1913, before any federal intervention in the sector. It is also one of the pioneers in need-based efforts, such as the Tuition Assistance Program initiative (TAP)[ii] which is helping low-income students pay for education fees. A heavy part of student aid falls on NY state's public expenditures. For example, the task of reducing tuition-aid gaps is under the competence of the state government, and public institutions are not mandated to provide tuition credits. No wonder, the state laments receiving modest federal help towards student aid and relies on this latter for both public grants and loan programs (as it does not operate any public state loan program).

Differently, Alaska's history with student aid is much shorter. Its state initiatives started after the federal HEA65, with the establishment of the first state education loan program in 1968[iii]. Soon later, the state knew a declining trend in its contributions towards student aid. Next to this defunding, Alaska's major problems were the low students' engagement with the programs, low attainment rates and high out-of-state students' mobility (ACPE, personal communication, 2018). The state is also believed to have depended upon significant federal assistance for student aid matters, although no data at this stage sustained this claim. One thing is sure; the state juggles both state-managed and federal programs with a lot of difficulties.

A possible federal interference in state decision-making over student aid is highly denied by both states, as they benefit from being autonomous in their decision and rule-making. Even more, federal-state amalgamation weakened after the 1980s due to the devolution of state functions. For example, in Alaska, the 1973 oil crisis loosened the centralization of state initiatives over loans, through the creation of an independent agency to raise alternative funds for loan programs[iv]. A change to this pattern occurred in Alaska after 2000, when federal and state loans became integrated within the same package. As soon as the state could rely on federal loans, it had enough budgetary room to resume its efforts on student aid, through non-repayable programs[v].

At the same time, both states were clearly subject to the strong federal preemptive power exercised since the 1960s. For example, the Higher Education Act (HEA65) preempts state servicing laws that conflict with the administration of its programs. This created a point of tension between the levels in both states. For example, in Alaska, state legislators addressed a federal rule interfering with state recommendations of loan lenders as a "Preferred list Problem". New York also entered in tension with the federal level as it passed a law requiring federal servicers to obtain state licensure to limit federal interference in New York's affairs[vi].

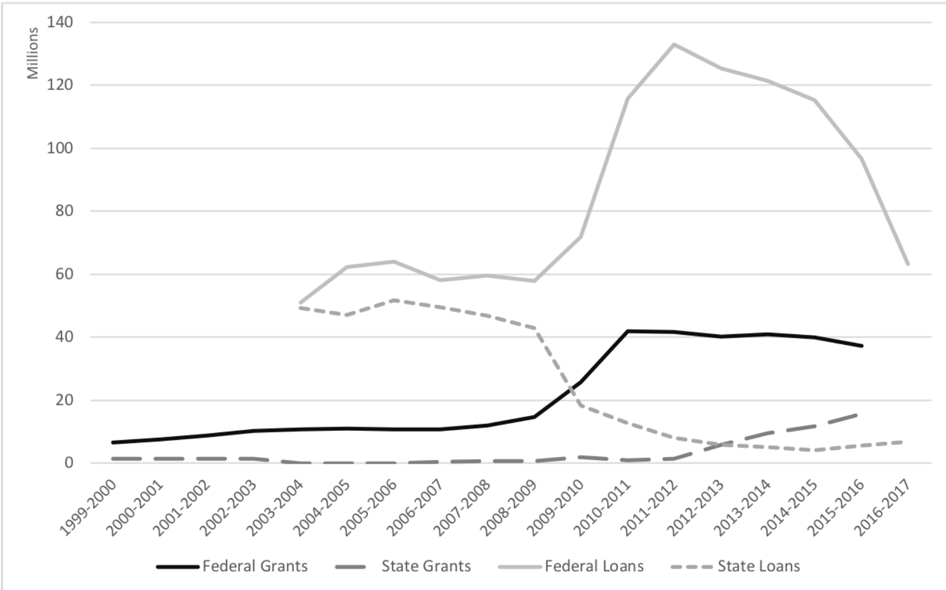
In investigating the co-dependency of resources, the collected data on both federal and state grants shows no evident relationship between the two levels[vii] . Only in Alaska, an interesting pattern appeared between federal grants and state loan, resembling a trade-off (see figure 5.1). **This "trade-off" resembles the federal-state "relations" reported in chapter 3. In the conclusion of chapter 3, an alternative explanation to the apparent federal-state resource integration was suggested through the administrative integration of aid programs and is investigated as follows.**

One way that federal grants (e.g. Pell grants) can relate to Alaska's grants (e.g. to apply for the Alaska Education Grant (AEG))[viii] is that unmet needs are calculated by first subtracting Pell grants:

> "*State of Alaska regulations require that state programs supplement rather than supplant federal programs. Postsecondary institutions certify that an eligible student has "unmet financial need. Institutions calculate "unmet financial need" by subtracting all non-loan aid from the student's cost of attendance, including the*

Figure 5. 1. Federal and State Grants and Loans in Alaska

(in millions)



federal Pell Grant. Institutions consider the Pell Grant in the calculation of a student's "unmet financial need". (N. Zimmerman, personal communication, 2018)

However, federal loans[ix] are not included in the state calculations as "*ACPE strongly encourages state loan applicants to utilize lower-cost federal loans before applying for the Alaska Supplemental Education Loan. However, it is not a requirement*" (N. Zimmerman, personal communication, 2018). To understand why state loans' drop accompanied federal grants' increase, the following explanations were provided by the state's loan managing agency. First, as state loans were financed through tax-exempt bonds, they were heavily hit by the 2008 financial crisis and had to tighten their eligibility criteria[x], which might have reduced the programs' uptake. This is a reason that rendered federally guaranteed loans more resilient to the crisis. Second, the state launched several initiatives, such as the Alaska Performance Scholarship in 2011-2012, and Alaska grant appropriations, opening alternative opportunities for students. These events were also in synchronicity with the end of the Federal Family Education Loan Program (FFELP) in 2010 (coming from banks and other private financial institutions), which was replaced by direct loans (coming directly from the DoED) (J. Rieselbach, personal communication, 2019).

Taken together, these arguments reinforce the findings of chapter 3, in which the relationship between the levels' expenditures was considered as rather "spurious". The same goes for New York as the programs' administration allowed some degree of federal-state intersections, without directly integrating the two. In a communication with the Higher Education Service Corporation (HESC), the agency confirmed that major state grants (e.g. TAP) are unrelated to federal grants in their calculation, except for the fact that application for TAP necessitates pre-filling information about the federal FAFSA. On the other hand, exceptions, such as the Excelsior Scholarship, were reported to be reduced by the amount of Pell increase (HESC, personal communication, 2018).

5.4.2. Finding: Towards an Intergovernmental Balance in Prince Edward Island and Quebec

Prince Edward Island (PEI) was recently described as a successful student aid example. After the 2008 crisis, it managed to stabilize and even decrease student debts through tuition freezes, increasing grant amounts, interest-free loans, RESP contributions and debt reduction programs (Brown, 2014). What is most important for the purpose of this research is that it was praised for having mobilized both provincial and federal governments in order to keep the student aid system above water. No study, to my knowledge, had investigated whether such success is effectively due to the relationship between the governmental levels. Hence, I analyze whether the provincial behaviour is influenced by the predominant federal structures and dynamics, as illustrated in chap. 3 and 4.

PEI administers its own provincial programs. At the same time, the province provides federal grants and loans on behalf of the federal level (A. Lawlor, personal communication, 2018). The amount of loans a PEI student can access is determined based on a combined federal/provincial pool in which money is attributed within an established maximum amount by each program[1]. This creates some level of integration for loans but not for grants. During the administration of provincial student grants and loans, bureaucrats reported following this specific order of attribution: After the province assesses students' needs (i.e. the cost of study minus the student resources), a positive need is first met by federal grants, then followed by federal loans and only then provincial loans (PSL). On the other hand, provincial grants go through a different assessment as "*PEI Grants are administered outside of our assessment software because they are not Needs-based"* (A. Lawlor, personal communication, 2018). Under this logic of attribution, federal programs are likely to be correlated to provincial loans.

In chapter 4, I argued that the 90s marked a returning federal role in Canada. The federal Student Loan Act was replaced by the Student Financial Assistance Act[1], where the federal role provided a fixed payment for banks to collect defaulted loans (1995) (chapters 3, 4). While decision-making was more at the hands of the provinces or the private sector, provinces established significant bonds with the federal level majorly due to the fact that it had better spending power. In the late 90s, the federal role was reinforced through the establishment of federal Special Opportunities and the federal Canada Millennium Scholarship Foundation[1] (Chap 3). The PEI province operated within these dynamics when it established the PEI Student Loan (PSL). No major efforts were made towards provincial grants, and the province reported no grant expenditures between 1995 and 2005. At this stage, the province was paying a risk premium to banks who provide loans instead of providing a guarantee. Since around 2000, provincial loans knew a continuous decline, dropping from 11 million to about 5 million (in 2016 dollars). The province had also been accumulating a significant amount of debt, reported to have reached $214.9 million in 2008 (Public accounts of 2008). This is when its policy became more focused on debt reduction and lowering interest rates[xi]. With the onset of the 2008 crisis, the strengthened federal role came to the rescue of PEI, in line with its efforts towards small provinces and territories. It committed to a $123 million towards CSLP over four years, independently from provincial's behavior[xii]. CSGP also consolidated these actions with 138$ million by trying to reverse the grant-loan balance in favour of grants. Furthermore, the post-2008 grant eligibility criteria became more responsive to students' related variables (i.e. family income, months of study, the number of dependents under the age of 12, etc.). In 2011, it passed a new Student Financial Assistance Act so as to contract with new loan servicers. It is only under these federal concessions that the PEI province decreased its loan expenditures and ultimately achieved the policy success that others praise it for. This clearly shows a predominant federal role in line with the findings of chapters 3 and 4.

The case of Quebec is expected to deviate from the remaining states and provinces. This is because Quebec is an "atypical" case that administers and finances its programs in a completely independent manner from the federal level. A case of disintegration by excellence. As stated by the ministry of education:

> *"Since the end of the activities of the Millennium Scholarship Foundation, the budget for student financial assistance (Quebec) has been entirely independent of the amounts received from the federal government. In addition, the transfers received are considered independently: they are received by the Ministry of Finance and are not included in the funding of student financial assistance"* (Ministry of Higher Education Quebec, personal communication, 2018)

However, I present three empirical examples suggesting a degree of influence and integration with the federal level. In the 1920s and 30s and 40s[1], student aid in Quebec started as a very modest form of aid that could not even qualify as a policy (e.g. a sum given to five students or professors to pay for their studies in Paris, the creation of the *Service de l'aide à la jeunesse* to provide aid for students in nursing). This could be a reason why, for the first 27 years (from 1937 until 1964), Quebec had to be operating student aid within the federal DSAP. In fact, aid was initially decided in collaboration with the federal level. It is only after 1964 that Quebec received federal funds and was expected to provide equal amounts to match them. Quebec opted out of the DSAP in 1954, and that for both student aid and university financing. As seen in chapter 3 and 4, the CSLP was perceived by Quebec as a major intrusion from the federal level. As Jean Lesage, former Premier of Quebec expressed it:

> *"The fact that the federal government offers only student loans, and no longer grants and loans as it seemed to be the case at a given moment, may, at first sight, appear as an effort to avoid the constitutional problem that scholarships posited. Indeed, through its control over credit, the federal government may appear to remain within its jurisdiction by granting loans rather than grants. We do not believe that this way of proceeding avoids the constitutional problem. The students themselves felt this because they openly opposed the new federal policy. The difficulty is that they are not loans, but interest-free loans to students. The banking institutions will grant the loans on federal guarantee, but the central government will pay the interest. This reimbursement becomes a direct subsidy from the federal government for educational purposes. Besides, the citizens to whom it is addressed are students, which is certainly not a coincidence, but rather the result of a policy of aid to education, which is an exclusively provincial domain"* (Lesage, 1964, Author's translation).

Clearly, the refusal of Quebec to enter in the 1964 CSLP agreement was pushed by constitutional arguments. Not only it was challenging the province's autonomy, but also infringed its provincial rights to act on loans, such as Quebec's civil code at that time, banning the possibility of taking loans if under 21 years of age. The decentralization of Quebec's programs was the most extreme representation of the centrifugal force expected within the Canadian federal system[1]. With the main purpose of removing the province from the federal grip, an alternative to the federal loan program was proposed:

> *"Every year, since 1964, Quebec receives a compensatory payment from the Government of Canada: by virtue of its withdrawal [meaning the withdrawal*

from CSLP], Quebec does not participate in the federal government's financial assistance programs. This payment is calculated on the basis of the previous year; as it is received with one year's notice, it cannot be considered as direct funding for the financial aid programs in Quebec. (F. Gagnon, personal communication, 2018)

Since then, Quebec had total control over both decision-making and implementation of its programs. In 1966, the law on loans and grants for students (*La loi sur les Prets et bourses aux Etudiants*[1]) transformed aid into a loan-system where Quebec guaranteed, paid for the interests and covered the defaults. Then, the province entered many program modifications, and law reforms (chapter 3). While secondary sources attribute these reforms to the establishment of the first national organization of the student union movement in 1964 (l'Union Générale des Étudiants du Québec (UGEQ)), such explanation remains weak. First, the law proposals preceded any efforts by the organization, the requirements of this latter were towards establishing a grant program, while the legislation ended up being loan-centric. Furthermore, the law was under the initiative of the conservative Premier of Quebec Daniel Johnson (Union Nationale) who intended for it to be a temporary reform to leave the CSLP. The law may have been accidentally maintained if not due to his sudden death.

The second example of federal interference was in the late 90s when the province started lamenting an increasing student debt. At the provincial level, Quebec attempted to change the student aid law into *La loi sur l'aide (financier) aux etudiants* (1997) where targets were expanded and programs were much more detailed. That same law highlighted the difficulties faced by the province, emphasized a cost-sharing with the family and removed debt forgiveness. Under these circumstances, it was convenient for Quebec to sign an agreement to benefit from the Millennium Scholarship. According to the ministry of education of Quebec:

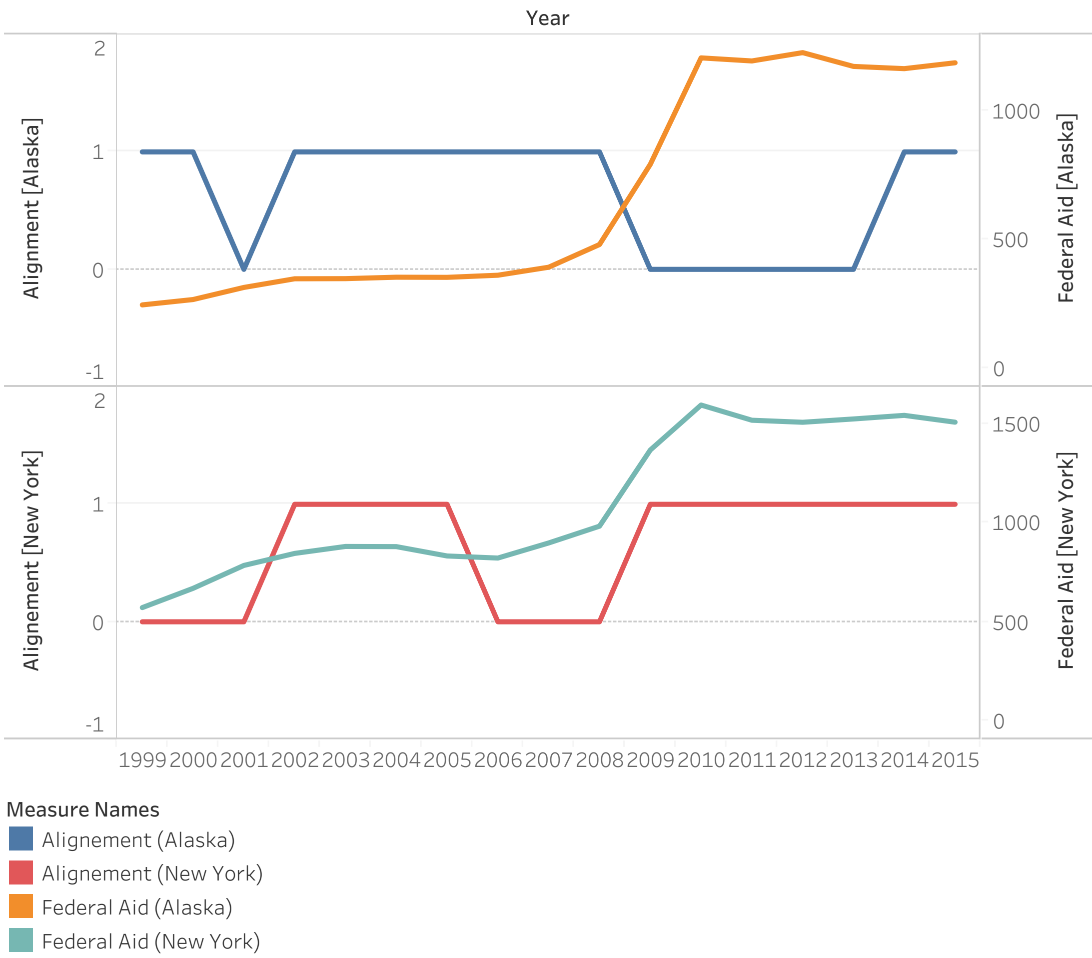
"*In view of this agreement, Millennium scholarships were integrated into Quebec program of loans and scholarships through the financing of 35*

M$ for the diminishing of loan amounts. This financing was integrated into the budget for the financial aid for students. In 2005, this amount was augmented to 45M$. Since, 2009, no amount was given under this title" (Ministry of Higher Education Quebec, personal communication, 2018).

On the one hand, this was due to the fact that the federal level offers grants and scholarships, while the province deals with grants and loans; thus holding complementary roles to cover for various student programs. On the other, the problem of debt had Quebec use federal scholarships to solve its students' loan problems. This created a lot of confusion and a poor understanding of where the money for loans is supposed to be coming from. The Concordia Students' Union, for example, has lamented not having received money from the CSGP budget, stating that "*the Government of Canada will be making a payment to the Government of Québec to compensate for actual costs incurred in the preceding loan year*" (Modjeski 2010) the moment in which no agreement- that I know of- has been signed for the CSGP.

5.4.3. Finding: The different Interacting Political-Economic Factors

Figure 5. 2. Federal Student Aid in Comparison with Federal-State Political Alignment, in Alaska and New York



The chosen case studies permit analyzing whether federal student aid allocations varied depending on background conditions or institutional ones by confronting these explanations. Contradicting what could be expected from background conditions, on the verge of the 2008 crisis, the federal level employed the same interventionist strategy towards both states, as illustrated in figure 5.2.

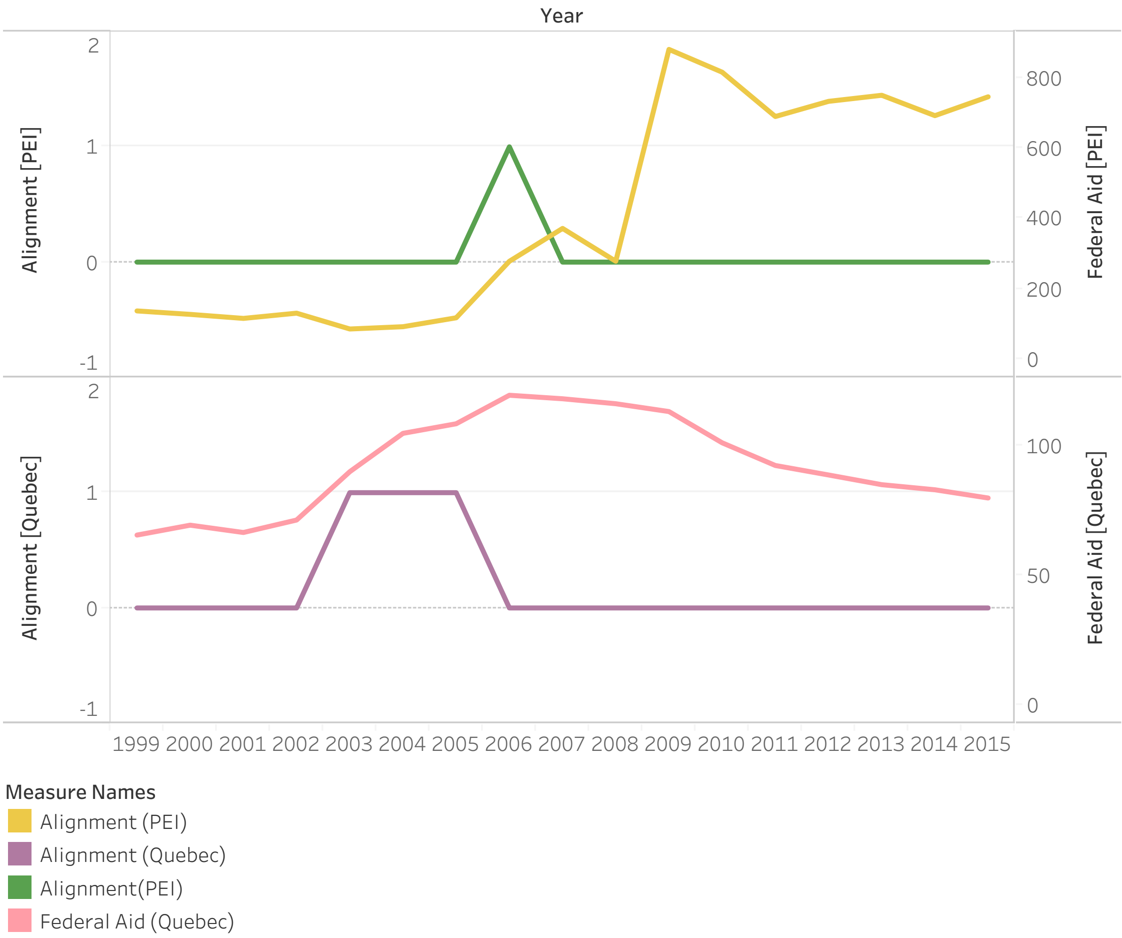
The two states present contrasting political and fiscal realities. Alaska is a state that regularly supports Republicans in presidential elections, while New York is more leaning towards the Democrats. Alaska is also a state that has been more fiscally dependent on federal transfers than New York, but strikingly, less dependent with regards to education spending. The fiscal gap in Alaska is embedded within higher than average tax revenues, making it so that Alaska receives high levels of federal transfers than the revenues sent to the federal government. By contrast, New York has been known for its high imbalance of payment since the 80s, a major object of federal-state contention. This fiscal reality is rooted in longstanding fiscal contracts. For example, the federal imposes high taxes on New York's individual income often unmatched by its spending.

In 2008, the political alignment would suggest more injections towards New York, in view of their democratic alignment, while the fiscal health of Alaska was more "in need" of federal interventions. In reality, by controlling for enrollment and tuition, neither political nor fiscal incentives created a difference in how the federal level allocated student aid to the two states[xiii], as seen from both figure 5.2 and tables 5.2, 5.3.

Differently from the United States, the federal level employed diverse strategies towards the two chosen Canadian provinces. PEI received significant federal aid towards its student which peaked during the 2008 crisis. On the other hand, the increase in federal aid towards Quebec was limited to the 2002-2007 period.

The PEI province is a classic example of small subunits that depend highly on federal transfers and equalization payments. Hence, the normative explanation alone could justify any generous federal intervention towards the province. What is interesting is that the fiscal and political incentives cancel out one another in front of a clear balancing strategy between the levels. In the last two decades, PEI alternated between Progressive Conservative and Liberal parties, in complete misalignment with the central government orientation (Table 5.4). Hence, neither their political alignment nor the national party stronghold could explain the increase in federal student aid. What is fascinating about this

Figure 5. 3 Federal student aid in comparison with federal-state political alignment, in Prince Edward Island and Quebec



case is that, although the data showed a fiscal imbalance that would resume after 2005; the perception of this reality was filtered by political positions. Prior to 2005, when vertical imbalances were negative (indicating that own resource revenues were lower than expenditures), the leading Conservative party dismissed the existence of a fiscal problem. After 2005, when vertical imbalances returned to being positive, Liberals lamented them as a fiscal problem, calling out for federal interventions. It is one of these intriguing cases in which the same fiscal reality is entrenched within political positions in a way to shape both the public's perception but also the other level of governments. Indeed, in 2005, as the province managed to pass the Maritime Province Higher Commission Act, a regional commitment towards "equitable" and "adequate" access to learning opportunities (Maritime Province Higher Commission Act of 2004), the federal attention given to this province increased.

In the last two decades, Quebec's position fell between the Liberal (PLQ: Parti libéral du Quebec) and the sovereigntist Social Democratic party (PQ: Parti Québécois). Its alignment with the Liberal party at the federal level synchronized with the increase in student aid as seen in figure 5.2 and table 5.5 (Appendix 5.2). The province is highly autonomous in its tax collection, but its high fiscal imbalance, unanimously acknowledged by all leading parties, has been more instrumentalised to revisit federal-provincial relations than to solve the fiscal problem itself. The PLQ often encourages increasing federal transfers to Quebec or the transfer of tax collection functions. This was historically illustrated by mapping the party's position towards equalization (Lecours et al. 2017). On the other hand, the PQ often sees fiscal imbalances as a federally created problem and an opportunity for separatist solutions with minimum to no federal interference. Hence, although the behavior of the two provinces has both involved the federal level, they contrast a rationale for economic equalization (PEI) with a political incentive for equalization (Quebec). Both incentives represent potential explanations for the different distributions of federal-provincial student aid, and the continuous interference of the federal level. Nevertheless, the different strategies remain embedded within the fiscal balancing strategy that provides **supremacy to the theoretical explanation of federal dynamics as this latter suggests a centrifugal movement of power between the levels of government.**

5.4.4. Finding: More Differences Between than Within the Countries?

The federal literature argues that strong fiscal capacities of the center and its interventionist role might create a subnational "free-ride" (Borge and Rattso 2002; Rodden 2000; Stein 1999; Winer 1983). By dismantling the myth of states as "benevolent" givers, the SGT made it rational to expect subnational levels to externalize policy costs towards the federal level. This is even truer in times of economic difficulties as subunits can not run deficits and are left with either borrowing or having the central state bail them out. **As stated in chapter 2, the federal literature expects a weakening of subnational spending in front of a central "promise of bailout", constituting a significant implementation gap for federal programs.**

Thus far, findings suggests an intricate relationship between federal and subfederal levels. While very few scholars had observed an specific federal-state pattern over grants where the the addition of $40 billion in 2008 was subsequently followed by state cuts (e.g. a drop of nearly 9$ billion between 2008 and 2017); chapters 3, 4 and 5 revealed several integrations between the two levels' resources, more significant in the case of Canada than the United States. Consequently, there are enough reasons to suspect that states and provinces could subtract federal student aid before their own allocations; and in such case, federal efforts could be seen as carrying water in a sieve. By investigating this possibility, the thesis' findings become also relevant in illustrating the likelihood of an implementation gap in federal policies, adding more practical policy relevance to the findings.

In order to describe the possibility of such behavior for the subunits, I resort to the idea posited by various economists such as John Richard Hicks and Robert Barro, which shows that governmental fiscal policies depend both on how governments "spend" and how economic agents "react" to these expenditures (Aschauer 2019; Barro 1974, 1979, 1981; Graham 2019; Hicks 1970; Lachmann 1947; Stern 2011). I borrow two terms from micro-economy:

1. **Complementarity means that the agent complements for the input given; for example by matching student aid benefits with his own efforts.**
2. **Substitution means that the agent substitutes his expenditures with the received input- for example when subunits use federal student aid to substitute for their own efforts of running state/provincial student aid programs.**

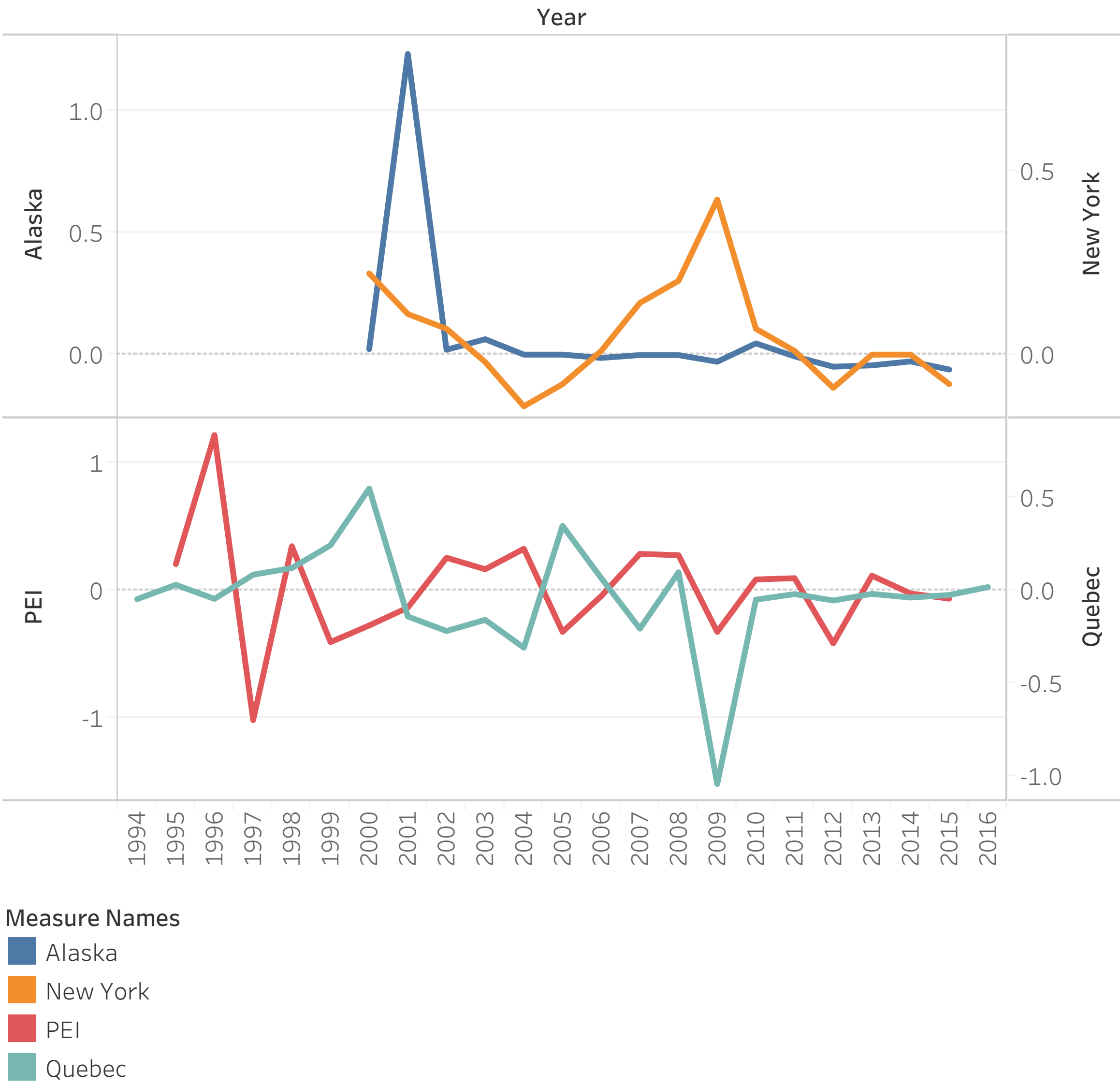


Figure 5. 4 Recapture rate between national and subnational levels, in all subunits

<u>Under a principle-agent approach, subunits, as rational actors, can either engage in "Complementarity", meaning that agent (states/provinces) complements for the</u>

principal's (federal) input; or "Substitution", meaning that the agent substitutes for the principal's input.

I calculated an approximate measure to the subnational behavior through a metric called the Recapture Rate, within a similar logic to the one used by Bettinger and Williams (2014). This variable is an indirect estimation of the amount that subunits need to spend to match federal injections and maintain the same level of efforts towards student aid. As illustrated in figure 5.3, a positive value (higher than zero) indicates that the federal spending exceeded the average expected from the state/provincial level; relative to each levels' total expenditures, and students number, **which suggests a substitution. A negative value (lower than zero) indicates that state/provincial level exceed the average expected from the federal level, suggesting a complementarity. A value close to zero indicates a matching of federal and state expenditures.**

The main relevance of this estimate is that it allows to visually show how the two countries differ in their intergovernmental interactions over expenditures. In line with the previous findings, this metric depicts a federal interventionist role, seen through the peaks in 2000 for Alaska and 2008 for New York. On the other hand, the oscillations in both PEI and Quebec indicate that the two levels engaged in a continuous give-and-take manifested in the oscillations around a specific value. This is also in line with the previous results suggesting a more fiscally balanced strategy in the case of Canada. Knowledgeable that the statistical unit root tests do not guarantee stationarity, and that this latter is hard to confirm with certitude, I report the statistical analysis that tests whether this metric oscillates around a specific value with a constant variance (Appendix 5, table 5.6). The statistical results also confirm significant differences between the two countries.

5.5. Discussion

At this stage, the responsiveness of student aid to student-related variables is highly doubted. The previous two chapters presented an institutional reading of this policy where multi-level functions are a result of historically engrained federal structures and dynamics. In the same direction, this chapter shows how the disintegrated and centripetal relations in the United States are equally reflected in both New York and Alaska. At the same time, the disintegrated decision making and co-dependency between the resources were also manifested – against all the odds- in both Prince Edward Island and Quebec.

It trying to elucidate the incentives behind this conformity to federal structures and dynamics, it also appears that subunits differ in the role played by political and economic incentives, providing case-specific explanations. **In other words, each unit is unique in the weight exercised by political and economic factors, and how the two interact; a case specificity that might further account for the non-linearity of this policy.**

In both countries, subunits from different background conditions contracted with the federal level. In that respect, the common finding between the chosen subunits remains that fiscal imbalances are likely to be instrumentalized in order to mobilize federal allocations. In other words, the federal intervention differs as it operates under different logics. One logic could be preventing the failure of large subunits so as not to create negative externalities for the whole system (Wildasin 1997), a logic of the "too-big-to-fail" such as what is happening for New York. Another logic, the "too-small-to-fail", adoperated by PEI in contracting with the federal level as this latter insists in equalizing between units based on their fiscal asymmetry. Another logic is more political, which I label the "too-autonomous-to-fail", which is what happening in Quebec, as disintegrated units might threaten the unity with political fragmentation and thus, pressure the federal level to interevene.

The chapter concludes with an additional section that visualizes the differences between and within the two countries but can also translate in future policy applications. The interaction between the levels' expenditures was captured by calculating a Recapture Rate metric which can be interpreted under a principle-agent approach to intergovernmental relations (where the federal level is considered as the principal and the subunits as the agents). The recapture rate has the potential to indicate effects of substitution (when subunits substitute for federal input by decreasing its own expenditures) and complementarity (when subunits complement for federal input by increasing its own expenditures) in the long run. Substitution might indicate that the federal input is sufficient to run the program and that reductions in subnational efforts can go unnoticed. On the other hand, complementarity might signal that the federal input is indispensable to implement or run the programs. This effect, and its relevance on assessing implementation gaps, need further investigations.

Appendix 5

Appendix 5.1

Table 5. 1 Case Selection Strategies

		New York	**Alaska**	**Prince Edward Island**	**Quebec**
	Background conditions				
Z_1	Size (Population)	4th largest 19,542,209	3rd smallest state 737,438	Smallest province 142,907	Second largest province 8,164,361
Z_2	GDP per capita	3rd largest 63,420	2nd largest[xiv] 67,411	Lowest 5,372.2	Second largest 346,713.7
Z_3	Enrollment student numbers	3rd highest 1273634	Smallest number of enrollment 28436	Smallest 6378	2nd largest 532 176
Z_4	Unemployment level (percentage)	28th lowest 4.9	Highest 6.9	2nd highest 10.7	4th lowest 7.1
Z_5	Average Debt per Student	15th largest 30,346 Avg debt in 2008 was same for Alaska and New York	11th lowest 26,008	2nd highest 18,200	lowest 10,100
Z_6	Average tuition	10th lowest	9th lowest	4th to 3rd lowest	lowest

Appendix 5.2

Table 5. 2 Party Alignment, Stronghold, And Fiscal Variables, Alaska

Year	Alignment	Party power	Federal Tax revenues	State Fiscal Imbalance
1999	1	33.2671136	1.2033E+12	1172337000
2000	1	33.2671136	1.3166E+12	1973293000
2001	0	58.6209553	1.2548E+12	-886083000
2002	1	58.6209553	1.0785E+12	-2.384E+09
2003	1	58.6209553	1.0754E+12	-1.197E+09
2004	1	58.6209553	1.1652E+12	-1.459E+09
2005	1	61.0653299	1.3928E+12	-175325000
2006	1	61.0653299	1.5622E+12	312321000
2007	1	61.0653299	1.6343E+12	1390335000
2008	1	61.0653299	1.5173E+12	-3.587E+09
2009	0	59.4245195	1.1443E+12	-1.351E+09
2010	0	59.4245195	1.2886E+12	1370354000
2011	0	59.4245195	1.488E+12	3600773000
2012	0	59.4245195	1.5868E+12	3253931000
2013	0	40.8126591	1.7662E+12	1.2799E+10
2014	1	40.8126591	1.8963E+12	-108008000
2015	1	40.8126591	2.0615E+12	-4.62E+09

Alignment equals 1 when the leading party at the federal and sub federal level belong to the same part, 0 otherwise. Source: https://www.elections.ca and https://ballotpedia.org/Elections

Party Power measure the percentage of national votes at the sub-federal levels. Sources: https://www.elections.ca and https://ballotpedia.org

Table 5. 3 Party Alignment, Stronghold, And Fiscal Variables, New York

Year	Alignment	Party power	Federal Tax revenues	State Fiscal Imbalance
1999	0	56.678939	1.2033E+12	9658361000
2000	0	56.678939	1.3166E+12	1.4472E+10
2001	0	32.4498166	1.2548E+12	5839967000
2002	1	32.4498166	1.0785E+12	-1.467E+10
2003	1	32.4498166	1.0754E+12	-9.201E+09
2004	1	32.4498166	1.1652E+12	-2.455E+10
2005	1	37.68653	1.3928E+12	-2.079E+10
2006	0	37.68653	1.5622E+12	-1.894E+10
2007	0	37.68653	1.6343E+12	-2.283E+10
2008	0	37.68653	1.5173E+12	-1.073E+10
2009	1	60.1569615	1.1443E+12	-7.299E+10
2010	1	60.1569615	1.2886E+12	2.0972E+10
2011	1	60.1569615	1.488E+12	2.1537E+10
2012	1	60.1569615	1.5868E+12	-1.621E+09
2013	1	60.7609842	1.7662E+12	5045647000
2014	1	60.7609842	1.8963E+12	2.6168E+10
2015	1	60.7609842	2.0615E+12	5838441000

Table 5. 4 Party Alignment, Stronghold, And Fiscal Variables, Prince Edward Island

Year	Alignment	Party power	Federal Tax revenues	State Fiscal Imbalance
1999	0	44.8	1.7135E+11	5,000,000
2000	0	47	1.8443E+11	28,000,000
2001	0	47	1.8038E+11	-36,000,000
2002	0	47	1.7776E+11	-57,000,000
2003	0	47	1.8328E+11	-88,000,000
2004	0	52.5	1.9504E+11	-95,000,000
2005	0	52.5	2.065E+11	27,000,000
2006	1	33.4	2.1637E+11	16,000,000
2007	0	33.4	2.2638E+11	66,000,000
2008	0	36.2	2.2037E+11	8,000,000
2009	0	36.2	2.1058E+11	3,000,000
2010	0	36.2	2.1278E+11	-9,000,000
2011	0	41.2	2.2707E+11	-93,000,000
2012	0	41.2	2.3224E+11	-85,000,000
2013	0	41.2	2.4323E+11	-17,000,000
2014	0	41.2	2.5594E+11	-16,000,000
2015	0	41.2	2.6318E+11	-22,000,000

Table 5. 5 Party Alignment, Stronghold, And Fiscal Variables, Quebec

Year	Alignment	Party power	Federal Tax revenues	State Fiscal Imbalance
1999	0	36.7	1.7135E+11	410000000.00
2000	0	44.2	1.8443E+11	-1141000000.00
2001	0	44.2	1.8038E+11	1063000000.00
2002	0	44.2	1.7776E+11	-3269000000.00
2003	1	44.2	1.8328E+11	-4467000000.00
2004	1	33.9	1.9504E+11	-3212000000.00
2005	1	33.9	2.065E+11	-536000000.00
2006	0	24.6	2.1637E+11	-1454000000.00
2007	0	24.6	2.2638E+11	646000000.00
2008	0	21.7	2.2037E+11	-1012000000.00
2009	0	21.7	2.1058E+11	-3251000000.00
2010	0	21.7	2.1278E+11	-1313000000.00
2011	0	16.5	2.2707E+11	-1199000000.00
2012	0	16.5	2.3224E+11	-1365000000.00
2013	0	16.5	2.4323E+11	-1123000000.00
2014	0	16.5	2.5594E+11	768000000.00
2015	0	16.5	2.6318E+11	3127000000.00

Appendix 5.3

Table 5. 6 The stationarity test on the substitution rate for the cases of New York, Alaska, Prince Edward Island and Quebec									
Augmented Dickey-Fuller Test alternative: stationary									
		New York		Alaska		Prince Edward Island		Quebec	
Type 1: no drift no trend									
	lag	ADF	p.value	ADF	p.value	ADF	p.value	ADF	p.value
[1,]	0	-2.22	0.0279	-1.079	0.285	-4.93	**0.01**	**-3.65**	**0.0100**
[2,]	1	-2.34	0.0220	-1.573	0.109	-2.70	**0.01**	-2.32	0.0227
[3,]	2	-1.52	0.1279	-0.854	0.364	-3.38	**0.01**	-2.23	0.0278
Type 2: with drift no trend									
[1,]	0	-2.29	0.226	-0.819	0.745	-4.92	**0.0100**	-3.61	0.015
[2,]	1	-2.47	0.160	-1.478	0.518	-2.62	0.1074	-2.28	0.230
[3,]	2	-1.61	0.472	-0.595	0.822	-3.65	0.0136	-2.22	0.252
Type 3: with drift and trend									
[1,]	0	-2.23	0.466	-1.062	0.912	-4.85	**0.0100**	-3.90	0.0288
[2,]	1	-2.37	0.415	-1.793	0.639	-2.52	0.3630	-2.56	0.3463
[3,]	2	-1.51	0.752	-0.932	0.931	-3.62	0.0484	-2.87	0.2355

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NOTES

[i] New York remained in the bottom quartile of the countries' tuition fees while Alaska's tuition fees increased out of control

[ii] Specifically, the state of New York provides three major grant programs (Higher Education Services Corporation, 2014).

1. Tuition Assistance Program (TAP): the largest grant in the state that aims to help students pay for their tuition. It is directed towards New York Residents attending in-state postsecondary institutions and belonging to the lower and middle classes. It is also given to both dependent and independent students, qualifying with different taxable incomes. The eligibility for the benefits is calculated based on the net taxable income. Students receive an annual award between $500 and $5,000 or tuition.
2. A Part-time TAP directed towards part-time students.
3. NYS aid for part-time, which provides grants for part-time students.

[iii] It which was initially directly run under the department of education till 1974 where it would be decentralized to state agencies.

https://acpe.alaska.gov/Portals/3/OTHER/Pubs/timeline_Web.pdf

[iv] I.e. the ASCL Alaska Student Loan Corporation.

[v] E.g. the Alaska Advantage Education Grants in 2005, or the Alaska Merit Scholarship in 2010 later named the Alaska Performance Scholarship.

[vi] Retrieved from: https://www.nysenate.gov/legislation/laws/EDN/A14-A

[vii] No analysis was run on state loans as New York does not run public state loans.

[viii] This is a state program run since 2005 for low-income families, especially minority and non-traditional students and funded from the Alaska Higher Education Investment Fund.

[ix] Differently from New York, Alaska runs its own loan funds, the main one being the Alaska Supplemental Education Loans, which also requires filling the federal FAFSA and is evaluated by state officials and campus financial aid administrators.

[x] As referred by the Commission of Higher Education in Alaska, an example is that before 2008; to qualify for a loan, students only needed (majorly) the absence of a negative credit. After 2008, the FICO scores were introduced as a guarantee -as they determine the creditworthiness and necessitate that the student has at least one account that has been open for six months or more and at least one account that has been updated with the past six months. This reform left many young students who did not have a history in borrowing out of the program. Therefore, the reduction in loan volume was probably also due to the reduced uptake of these programs (J. Rieselbach, personal communication, 2019).

[xi] The province also agreed with Credit Union Central so that this latter would fund and deliver the loan programs and that the province will guarantee them (2004). This agreement made it so that the province also paid a prime less than 0.6% (interest).

[xii]The budget invested 350 million in 2009, becoming 400$ in 2010, 415 million in 2011, and 430$ million in 2012.

[xiii] Due to limits in data observations, no regression analysis was run at this stage to ascertain this observation statistically.

[xiv] This information might seem to contradict the case selection choice, but it does not consider that "Alaska's high per capita GDP indicates the state's economy is especially productive relative to its population, but much of that is tied to the high value of Alaska's oil and minerals export commodities". Hence, although the GDP per capita is one of the highest in the country, it measures the market value of goods and services regardless of

the final destination of such profits. Retrieved from:https://www.commerce.alaska.gov/web/Portals/6/pub/2011_Alaska_Economic_Performance_Report.pdf

6. Conclusion

This last chapter is not just a summary of all findings. It majorly emphasizes their substantive and theoretical relevance. The thesis speaks to public policy researchers, with a specific focus on addressing education and federal scholarships. It also provides context-specific insights, for those interested in educational policies within the United States and Canada. Last but not least, findings enable to generalize from small-n case studies towards abstract theoretical relationships.

I start this chapter by revisiting the research questions that motivated my work, illustrating how they relate to one another (section 6.1). Then, I present the institutional arguments and summarize the significant thesis' findings (section 6.2). After that, I translate these latter into substantive and theoretical applications (section 6.3). I conclude with a discussion of the thesis limitations, in the hope of spurring future research improvements (section 6.4)

6.1 Research questions

The thesis started with an interesting paradox. The decentralization of education policies is an unquestionable global trend. An example is the United States and Canada who surrender education policies to the jurisdiction of their subnational governments. Yet, a multi-level approach to these policies has been highly recommended by the literature. The reason is that their complex nature (i.e. multi-issue and multi-actor) cuts across different policy sectors, appeals to the coordination of different actors, and necessitates resources from different stakeholders. Therefore, they are likely to fall in the double-hand of different governmental levels, even in remarkably decentralized contexts. Therefore, the central puzzle was *whether education -in decentralized contexts- should still be addressed from a multi-level standpoint?*

The focus on student aid was very advantageous in solving this puzzle. Student aid is a sub-sector policy often marginalized by the literature for being "too specific", "not salient enough", "less interesting" or even "less redistributive" than other programs. On the contrary, the policy can prove to be highly engaging as it is multi-faceted (multi-actor, multi-sector) and remains at a crossroad between welfare and education. Hence, it contrasts discordant views about redistribution and clashes functions from different governmental levels.

After a state of the art review (introduction), the research scope was narrowed to fill four significant literary gaps: 1) the lack of within-clusters analyses, because of a dominant "clustering research business"; 2) the need to address a multitude of policy instruments, in view of a focus on financial instruments; 3) the need for representing the longitudinal evolution of this policy, given the lack of data on student aid, and 4) the need for a multi-level approach, as this latter remains utterly absent from the literature. These shortcomings left out broad questions such as: *Could two neighboring countries - considered by welfare theories as similar- develop different student aid trajectories? Could longitudinal analysis show more differences in time than the ones revealed by cross-sectional approaches? Could multi-level analysis reveal significant intergovernmental relations over student aid, even in decentralized contexts?*

With the motivation to tackle all four voids, the United States and Canada were carefully selected to control for similarities in their background and welfare explanations; while being borderline between similar (old wave of federalism) and different in their federal systems (modern wave of federalism) which is the explanatory variable of interest. The case study choice enabled to confront two theoretical views in their potential of explaining student aid. In doing so, the previous broad questions concretized becoming: *Could the United States and Canada have developed diverse student aid trajectories? Could differences in their federal systems explain such diversity?*

When it comes to theory, I adopted an institutional approach in view of the fact that federalism was considered as a political and economic institution. I designed a specific analytical architecture that bridged between two institutional traditions: historical institutionalism and rational choice theory, so as to address the same question from two complementary angles. At that stage, the research question was reformulated as whether Intergovernmental student aid is process-driven *(Historical institutionalism) or goal-driven (Rational choice institutionalism)?*. I also collocated the thesis within the recent wave of federalism- i.e. the revitalized interest in federal research that started in the 90s- as it converges both neo-institutional traditions with the old structural approaches. This upsurge was also synchronized with the second wave of fiscal federalism (SGT), a theory acknowledging the role political institutions on federal fiscal arrangements (chapter 2).

When it comes to the explanatory framework, I adopted a modern classification of federal systems suggested by Colino (2013) (chapter 2), differentiating -to a certain extent- between the United States and Canada's federal systems. The framework's relevance is that it enabled the formulation of working hypotheses throughout the thesis. Indeed, the impact of federal institutions was analyzed through federal structures and dynamics, positing the following research questions:

RQ. 3.1,3.2 whether and how federal structures affect student aid stability?

RQ 3.2 whether intergovernmental relations differed between two federal systems considered similar in their structures?

RQ. 3.3 whether/how intergovernmental relations have changed over time?

RQ. 3.4 whether/how they differed between two federal systems considered similar in their structures?

RQ 4.1. whether and how federal dynamics affect student aid change?

RQ 4.2. Under which incentives?

RQ 4.3. Whether the two countries differ across these dynamics?

Findings from chapter 3 and 4 confirmed the impact of federal institutions on the student aid trajectory while highlighting significant differences between the countries. Nevertheless, while some theoretical prepositions were confirmed, others were challenged (see 6.2 Key arguments and findings). What is more, findings were limited to an analysis of the average case, aggregating states and provinces within the same basket. Therefore, in chapter 5, I retested the validity of the theoretical expectations through four embedded deviant states and provinces: New York, Alaska, Prince Edward Island and Quebec, positing the following questions:

RQ 5.1. *Could federal institutions explain students aid trajectories in deviant states and provinces?*

RQ 5.2. *If so, what could be the political-economic incentives?*

RQ 5.3 *Are there more similarities within or between the countries?*

6.2 Key arguments and Findings

The thesis adopts a federal way of thinking about student aid. Its findings empirically sustain the influence of federalism on public policies beyond the normative assertions that federalism matter. Chapters 3, 4 and 5's results converge in revealing a convoluted nature of student aid while uncovering theoretically-neglected differences between two federal systems.

In chapter 3, the main argument is that federal structures matter for student aid and distinguish the United States from Canada. On the surface, structures - intended as the constitutional, legal and regulatory contracts between the federal and sub-national levels- were expected to reveal a similarity in the countries disintegration- intended as a minimal federal interference over sub-federal jurisdictions. In reality, student aid was bound by the federal structure, managing at times to leak out of it. Initially, the novelty of student aid, cutting across relevant policy fields such as unemployment, veteran and native American policies, and maybe even its marginality, created a specific situation where both levels were "figuring out" how to seal the distribution of its functions.

Following which, historically rooted federal structures managed to create a hierarchy in decision-making rules for the case of the United States, while the Canadian system exhibited a “two-ways” integration of resources. In a way, structures provided an "internal logic" within which student aid was bounded, albeit attempts to challenge this structure. For example, in the United States, intergovernmental links created over decision-making were coupled with disintegrated resources, while the opposite was found to be true for Canada. In the former case, the growth of the federal hierarchy had to be accompanied by resource independence to limit the central power and not drift away from the "disintegrated logic". By the same token, in the Canadian system (historically bound by its jurisdictional federalism), limitations of federal decision-making and rules had to be coupled with resource codependency, guaranteeing a federal say over these policies so as not to drift too far from a logic of unity. These findings were highly aligned with the modern literature hypothesizing different degrees of intergovernmental integration among the two countries (hypothesis H3.2).

In chapter 4, the main argument is that dynamics -intended as the movement of power between centre and periphery- explain how student aid managed to evolve within the aforementioned federal structures. The United States was found to operate under a predominant centripetal force, manifested in either a relevant interventionist role of the federal level or through constraining coordination between the levels. On the contrary, Canada was not always driven by its predominant centrifugal force as this latter was projected towards achieving more balance between the levels by actively encouraging arm's length cooperation. In both countries, incentives to move along these forces were consistently embedded within a broader goal of closing the fiscal gaps created among the levels. The federal fiscal explanation - defined as the formal and informal fiscal contracts between the levels of governments- provided a more solid reading to student aid than political ideologies – at this stage defined through the left-right positioning of leading parties and veto players in the central level. Findings suggest that party positions towards student aid might not be consistent, while the financial aspect of student aid is probably instrumentalized to reach fiscal goals rather than student-related considerations.

In chapter 5, the main arguments are to test the validity of the previous findings on single states and provinces, but also to challenge their applicability through deviant case studies, namely: Alaska, New York, Prince Edward Island and Quebec. Findings align with chapter 3 and 4 in revealing further differences between the two countries. They also confirm a fundamental commitment of the central level in all subunits, expect for Quebec, as clearly shown by the generous post 2008 injections. At the same time, more fine-grained differences are found in their responsiveness to political and economic incentives. Indeed, as the institutional literature suggests, incentives depend on the institutional contexts as this latter reinforces or weakens political and economic ties.

When taking all these findings together, the impact of federal institutions on the history and future of student aid is more relevant in presenting an unprecedented but also solid reading to the evolution of these policies. What is more, the findings converge in revealing differences between the two countries, validating the fundamental institutional distinctions between their federal systems.

6.3 Relevance

In this section, I organize the thesis relevance as knowledge-building, theory-building and in its policy applicability within the two contexts. In brief, the focus on student aid policy within the United States and Canada provides thicker case and policy-specific knowledge, widens our understanding of about federal varieties. Findings also address scholars from the fields of education, federalism, but also anyone interested in public policy within complex environments as they theoretically address the juxtapositions of different units of analyses (multi-level) and bring together contrasting frameworks about policy change. Last, findings can have an impact on contemporary policy decisions.

6.3.1 Knowledge Building

So far, the existing literature provided weak information about the evolution of intergovernmental student aid. Striking two birds with one stone, findings expand our knowledge about student aid while showing that a sub-sector policy can reveal a lot about federal systems and that a comparative method can say much about federal varieties.

1. To my humble knowledge, this thesis is the first to provide a longitudinal image of student aid that is comparable between the United States and Canada and at the same time covers more than one decade. Without this effort, we would not have known that the path-dependency of the reforms in both countries results from deep-seated federal institutions. These latter not only influence the way student aid functions are distributed among the levels but also the different types of programs that will be implemented. Also, we would not have been able to describe their expenditures as more cyclic in the Canadian case than the United States. It would not have been possible to run valid regressions on a small number of observations, showing that the United States is more responsive to student-related variables than Canada, with the federal level being pro-cyclic and the state while the latter's levels respond separately to either the business cycle or tuition increases. Spanning our observations on the long run enabled us to observe two financial crisis (1973 and 2008) where a federal interventionist role in the United States was depicted, while an intermittent federal role in Canada was not mistakenly taken for disposable. Furthermore, only a longitudinal and multi-level approach could reveal that federal fiscal motives are more significant in predicting student aid in the long run. Last but not least, chapter 5 contributed to our knowledge about student aid as found to be more unusual in Alaska and Quebec than what is expected from both.

2. The thesis established that multi-level student aid is essentially more than the sum of the levels' actions. This realization translates to the federal scholarship as truly divided political and fiscal sovereignty are quite rare to find, even within highly decentralized sectors.

3. Student aid trajectory was found to have both a linear and non-linear phases, answering recurrent questions about the sporadic nature of these policies (introduction). The linearity was seen in years of stable intergovernmental

relations explained by the predominant federal structures and dynamics. At the same time, the governing political and economic incentives, more wavering than student-related motivations (e.g. student demands, enrollment…etc.), created significant adjustments within federal institutions, explaining phases of nonlinearity. Relevant to the federal scholarship, in line with the SGT, political-economic federalism explains better why federal systems are permanently in motion, given their exposure to continuous political and economic pressures for change.

4. Findings establish that student aid differs substantively between the United States and Canada, challenging the existing clusters that assimilated the two countries along with their private finance of education. Before this study, the two countries' aid systems were compared across singular dimensions (e.g. generosity, student aid programs, student aid outcomes). This thesis cuts deeper than all the previous dimensions by revealing the fundamental institutional differences that govern such policy outputs (and possibly their outcomes). At the same time, if someone was still entertaining the idea that the United States and Canadian are similar federal systems, this thesis will help challenge this notion. It does so by informing us about more than one way of designing policies in systems that "appear" similar in their welfare approach.

5. The findings put light on the central role as indispensable for student aid in both countries despite their different federal configurations. This realization was more counter-intuitive for the Canadian case as the central role's intermittence was synonymous to its irrelevance. Nevertheless, it resonates with the recent federal literature that attributes a fundamental role to the Canadian central level in both the field of education research and student aid (Fisher et al., 2006; Sá & Litwin, 2011)

All in all, the added knowledge reveals a convoluted nature of student aid policies while uncovering equally complex relations of the federal systems in which they were designed.

6.3.2 Theoretical Relevance

The primary goal of Congruence analysis in small-N studies is "*to make a contribution to the scholarly discourse on the relevant and relative importance of specific theories (explanatory framework) and general paradigms (meta-theories*)" (Blatter & Haverland, 2012, p. 150). Indeed, attempts to test the impact of the chosen federal framework on student aid have run aground on theoretical contributions in two fronts.

One way is through refining the specific theoretical framework to generate better working hypotheses. Applying the framework suggested by Colino (chapter 2) revealed two caveats to the validity of the framework. The first is related to the validity of the constructs of "federal structures" and "dynamics"- intended as "*the degree to which a given procedure for transforming a concept into a variable operationalizes the concept that it is intended to*"(Corbetta, 2003, p. 81). For example, the concept of integration was defined through codependency, but conceptually, the two differ in that the former is more indicative of intergovernmental interferences in legislation, rule-making and resource distribution; while the latter designate connections that might occur outside the boundaries of each levels. Indeed, such differentiation is even more complicated when translated from the qualitative to the quantitative methodology, as integration corresponded more to statistical cointegration, and codependency corresponded more to statistical correlations. Not only this challenges the construct validity- meaning "*whether an indicator corresponds to theoretical expectations in terms of relationships with other variables*", it was also initially puzzling during the interpretation of the results, and that since legal and rule-making disintegration and resource codependency were both found within the same case study (Canada). Therefore, I suggest a differentiation between the two concepts. The second refinement is the choice of "joint-decision style" as a variable rather than a specific intergovernmental interface. Chapter 4 proceeded with such "correction" by operationalizing the variable through four distinct styles. The results from the case study also suggest refinements to the framework's prepositions. In chapter

3, structures were found to be more integrated in Canada than expected. At the same time, in chapter 4, dynamics were found to be majorly centripetal in the United States but more directed towards a vertical balance in Canada. Both findings suggest reformulating the initial hypotheses allowing more differences between the countries' structures and loosening the predominance of the centrifugal force in Canada. It is also worth remembering that the transition between chapter 4 and 5 led to refining the political-economic explanations, moved from the political hypotheses embedded in broader explanatory discourse (i.e. party ideologies), into political variables more suitable for the intergovernmental context (i.e. party power at the subnational level and alignment between the levels' party positions).

Another applicability of the CON method is by developing a new theoretical synthesis bridging across different paradigms. In chapter 2, I argued that three major features remain indispensable in choosing the proper theory to assess and analyze policy change: units of analysis, linearity and motors of change. While hypothesizing a multi-level nature of student aid collocated it among multi-unit approaches, choosing a framework that fits student aid linearity/nonlinearity, as well as simplicity/complexity of motors of change, could not have been done in hindsight. Hence, throughout the thesis, CON confronted two distinct paradigms. The first challenge was choosing between a process-driven or goal-driven explanation. Hypotheses were generated under both a historical institutional logic and a rational choice. While the first investigated the path-dependency of intergovernmental student aid, the latter investigated its goal-driven nature. Political and fiscal incentives emerged as significant explanations for student aid, but they could only be read as an output of overarching and deeply rooted in formal (constitutional, legal) and informal (intergovernmental agreements) rules. Hence, they confirmed the necessity of bridging between the two paradigms, as suggested in chapter 2. The second conundrum was choosing between simple or complex motors of student aid change (chapter2). In this case, the trajectory of student aid was observed to have:

- A sensitivity to the small differences in their initial conditions: the history of intergovernmental student aid was traced back to the G.I Bill and "Canadian G.I

Bill" (chapter 3), nevertheless, the two reforms were implemented with slightly different conditions. Fast forward seven decades, these small differences set the countries on two opposite tracks.

- Repetitive nature of intergovernmental dynamics: Student aid remained subject to centralism and coordination in the United States and decentralism and arm's length cooperation in the case of Canada. This repetitive behaviour between the two interfaces indicated cycling through the same behaviour over and over again (this has been termed the topological transitivity)
- Possible points of equilibrium: In chapter 5, the indication that the Canadian intergovernmental relations tend towards balance is not sufficient to ascertain this characteristic but could be further investigated in the longer run.

The sensitivity to initial conditions, combined with the repetitive nature (topological transitivity) and return to a specific point after a certain number of repetition (density of periodic points) are all characteristics of a chaotic behaviour, as suspected by several scholars to characterize many policies within the education sectors (Ercetin and Banerjee n.d.; Kayuni 2010.; Wright and Shevchuk 1994).

6.3.3 Policy Implications

The thesis can have significant policy implications tailored to the cases of the United States and Canada.

1. Currently, research on student aid is highly sceptical about its efficiency, blaming it on complexity, cost increase and lousy design and implementation (e.g. Burke 2010; Mumper 1996; Smith 2012). In this same line, the thesis takes issue with the fundamental idea that student aid is designed with redistributive considerations. Instead, it showed student aid to be governed by broader political and economic interests. The possibility that these latter might entirely override student-related variables needs to be taken seriously.

2. Understanding the impact of federal institutions on student aid might help assess the applicability of policy proposals. For example, the U.S. Aim Higher Act is a recently discussed proposition that could increase federal grants while incentivizing states to reduce tuition fees. Democrats will likely advance the proposal if they win the next presidential elections. Even so, the thesis' suggestions see it as unlikely in view of the current fiscal gap between the governmental levels, hypothesizing a maintenance of low federal injections on student aid notwithstanding the likelihood of a political consensus.
3. Chapter 5 put light on a high possibility of implementation gaps in the United States in view of a substitutive tendency of states. The likelihood of such behaviour should be taken into consideration as federal increases are recommended while states have been defunding student aid programs since 2008 (e.g. 2018 recommendation by the Institute for College Access & Success).
4. A more general application is that a better grasp of the fundamental differences between the United States and Canada can challenge the transferability of policy experiences from one federal context to another.

6.4 Directions for Future Research

Federal structures and dynamics are not the only relevant variables to account for the countries' different trajectories. While the thesis shed light on more substantial issues like political and economic incentives, it turned a blind eye to other possible explanations and information sources, and that for both time and data limitations:

1. The focus on vertical relations dismissed the relevance of horizontal relations over policies. Policy learning proved to be relevant in explaining k12 education similarities between the Canadian provinces (Wallner, 2014). However, while this was logical in front of a total lack of federal oversight on these policies, this is not exactly the case for student aid as I argued an engaging federal role.

2. A significant factor that could differentiate between the two countries is their asymmetrical degree of education privatization. The United States accounts for more than 900 for-profit institutions compared to less than 50 private institutions in Canada. **Beside being beneficiaries of many federal student aid programs, private institutions also contract with states and provinces to run programs specific to students in these institutions, such as tuition discounts. In their competition with public universities, the private sector creates pressure on both federal and sub-federal levels. Hence, the clear asymmetry between the two countries might further justify the interventionist federal role observed in the United States compared to Canada which can be developed by further research contributions. However, even if found to be significant, such effect would not contradict the thesis' findings because privatization itself is a phenomenon embedded within the federal marks ups of the United States and Canada. In his historian reconstruction of the schooling system in Canada, Paul Axelrod noted that the United States preceded Canada in its generous endowments towards private institutions, establishing a tradition of enterpreneurship since the 19th century (Axelrod 1997). Although this generosity was more apparent in the United States in view of its larger population, more developed business sector more numerous evangelical communities, a closer reading to Axelrod's observations reveals that privatized system developed by being highly ingrained in the fragmented characteristics of the two countries' federal systems. In other words, the recognition of public and private institutions in the United States as potential beneficiaries of federal assistance, and as diversified options for students access reflects the fragmented reality of the United States' federal system. The same is true for Canada, where its lack of private institutions can be embedded within its keenness in balancing between subunits highly asymmetrical in their own resources. In other words, in its quest towards balance, it would have been unacceptable for the country to admit a**

proliferation of private institutions that would have penalized poor and smaller provinces.

3. Beside private institutions, public universities and colleges are certainly a relevant actor at the center of the federal-state relations. Universities are in continuous fiscal arrangements with both levels when dealing with student aid and tuition fee control (see chapter 3, discussion). For example, it was the National Conference of Canadian Universities that pressured the federal level to establish the G.I bill. Also, it was the Association of Universities and Colleges of Canada to advocated for the Income Contingent Loan Repayments in 1998 (Fisher et al., 2006) at times threatening to increase tuition fees if it received no assistance from the federal level.

4. Of course, the chosen methods also have some limitations that need to be improved. For example, although the limitation of student aid definition to a manageable number of aid programs was well justified in the introduction (chapter 1); **further data collections could well improve the coverage of significant student aid programs such as tax credits as this was the most difficult variable to collect data upon in view of diverse calculations used by the two countries.** Another limitation is in the choice of the dependent variable's indicators. As student aid locus was assessed through legal, fiscal and administrative instruments, I acknowledge that these indicators are not perfectly representative of where responsibilities fall. For example, a reduction in expenditures does not necessarily mean a loss of responsibilities, as other policies of cost control can accompany it.

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