

# Insper

**Insper Instituto de Ensino e Pesquisa  
Programa de Mestrado Profissional em Administração**

**THE EFFECT OF FEDERAL STUDENT LOANS ON ACCESS  
TO FOR-PROFIT BUSINESS COLLEGES IN SÃO PAULO**

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**São Paulo**

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Área de Concentração: Estratégia  
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Orientador: Prof. Dr. Sérgio Giovanetti Lazzarini

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Palavras Chaves:

1. Provisão de Serviços Públicos 2. Gestão de Educação  
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## ABSTRACT

LINDEN, Timothy P. **The Effect of Federal Student Loans on Access to For-Profit Business Colleges in São Paulo**. 2016. Dissertation (Masters Program) – Insper Instituto de Ensino e Pesquisa, São Paulo, 2016.

Most societies have traditionally conceived of higher education as a public good supplied by the state, but in recent decades higher education systems around the world have become increasingly operated by private groups. This paper explores the evolving roles of the public and private sectors in Brazil's higher education system, with a focus on issues of social equity. Using panel data from 2010 to 2014, I examine whether a large federal student loans program, the *Fundo de Financiamento Estudantil* (FIES), has helped democratize access to for-profit business colleges in the state of São Paulo. I find that FIES had a positive effect on student enrollment, but did not affect the percentage of enrolled students who graduated from public high schools. These results align with the theoretical framework relating private provision of public services to compromised non-contractible quality. From a policy standpoint, the results shed light on the challenges of higher education equity and support the more rigorous selection criteria that the FIES program adopted post-2014.

**Keywords:** Provision of Public Services; Higher Education Management; Incomplete Contracts; Equity; *Fundo de Financiamento Estudantil* - FIES

## RESUMO

LINDEN, Timothy P. **O efeito de crédito estudantil federal no acesso a faculdades de administração com fins lucrativas em São Paulo.** 2016. Dissertação (Mestrado) – Insper Instituto de Ensino e Pesquisa, São Paulo, 2016.

Tradicionalmente, a maioria das sociedades tem concebido o ensino superior como um bem público fornecido pelo Estado, mas os sistemas de educação superior ao redor do mundo tornaram-se cada vez mais operados por grupos privados nas últimas décadas. Este estudo investiga a evolução dos papéis do setor público e privado no sistema de educação superior do Brasil, com foco em questões de equidade social. Foram utilizados dados em painel de 2010 a 2014 para examinar se o Fundo de Financiamento Estudantil (FIES) tem ajudado a democratizar o acesso às faculdades de comércio e administração com fins lucrativos no Estado de São Paulo. As análises indicam que FIES teve um efeito positivo sobre as matrículas, mas não teve nenhum efeito sobre a porcentagem de alunos matriculados que se formaram em colégios públicos. Esses resultados estão em conformidade com a teoria que relaciona a provisão de serviços públicos por grupos privados a riscos de qualidade não-contratável (*non-contractible quality*). De uma ótica de política pública, os resultados apontam os desafios de equidade na educação superior e apoiam o processo seletivo mais rigoroso que o FIES adotou após 2014.

**Palavras-chave:** Provisão de Serviços Públicos; Gestão de Educação Superior; Contratos Incompletos; Equidade; *Fundo de Financiamento Estudantil* - FIES

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## EXECUTIVE SUMMARY

In 2010, the Brazilian federal government made changes to its federal student loans program, known as FIES. These changes made student loans to cover college tuition fees much more financially attractive and led to a dramatic increase in the number of students with FIES contracts. Consequently, the amount of public resources consumed by the program also increased significantly. By 2013, FIES was known as a flagship program of President Dilma Rouseff's government. Despite the popularity of FIES, there is very little scientific evidence about its effectiveness. Was the program successful at helping to democratize access to higher education as the government suggested it would?

This study evaluates the effect that the FIES program had in terms of access to for-profit business colleges in the state of São Paulo. The data utilized for the study comes from a publicly available annual higher education census carried out by a federal government agency that contains a wide array of information on higher education institutions, programs, teachers and students. The results show that FIES caused a modest increase in enrollment at São Paulo's for-profit business colleges. A 20% increase in the percentage of students with FIES loans from 2010 to 2014, which is roughly the average found in my data, leads to an average enrollment increase of 2.8 to 6.2%. Taking the rough mean program size of 210 students, a 20% increase in the percentage of students with FIES loans would lead to an average increase of 6 to 13 students enrolled.

Although my data show that FIES had a positive effect on enrollment between 2010 and 2014, it did not have a significant effect on enrollment for students from public high schools, who typically come from families with lower socioeconomic status than students from private high schools. FIES did not cause an increase in the percentage of students at for-profit business colleges in São Paulo that graduated from public high schools, which was already around 80%. This result is somewhat curious considering the fact that FIES disproportionately benefitted public high school graduates in 2013 and 2014.

If the Brazilian government is truly concerned about decreasing social and economic inequalities by providing better educational opportunities to traditionally underprivileged segments of the population, then it must design and implement

programs such as FIES in a way that truly benefits such segments. It must also carefully monitor and evaluate its policies and programs in order to understand the costs and benefits of its efforts. As these efforts are paid for with public resources, a greater degree of transparency is recommended.

In 2015, a number of changes were made to the FIES program. For example, FIES loans were restricted to students whose per capita income was less than or equal to 2.5 minimum wage salaries, and only students who scored about 450 on the Enem exam, which is a general exam that all high schools students take, would be eligible for loans. These changes help ensure that only low-resources students who are sufficiently prepared for college programs will be granted FIES loans, and therefore seem to address some of the issues highlighted by this study. This more targeted use of public resources should help increase FIES's impact on the government's social agenda.

However, even if FIES does successfully help more low-resource students gain access to higher education compared to high-resource students, that would not necessarily mean that FIES fixes certain high education equity issues. Do the higher education institutions where such low-resource students most commonly enroll truly transform their life prospects? Do these students leave college with knowledge and skills that allow them to recuperate the direct costs and opportunity costs associated with higher education, or are they forever burdened by the interest on their college debt payments? While accurately evaluating the quality of higher education services is a tricky business, the Brazilian government already has an instrument for these purposes that takes into account test scores as well as information about the qualifications of program's teachers and the institution's infrastructure. It is necessary to provide disadvantaged students high quality college educations so that they can effectively break the poverty cycle that has historically persisted from generation to generation.

## 1 INTRODUCTION

The Brazilian federal government authorized higher education institutions (HEIs) to operate as for-profit enterprises in the mid-1990s. During the decades that followed, numerous public policies and a significant share of public resources were committed to support the increase of higher education enrollment. Between 1995 and 2013, Brazil's undergraduate enrollment dramatically rose from 1.76 million students to 6.15 million. Of these 6.15 million students, 71% attended private institutions (TACHIBANA; MENEZES-FILHO; KOMATSU, 2015).

This paper sheds light on public-private interactions in Brazil's higher education system. I explore the question of optimal service provision, bearing in mind the government's goal of expanding higher education opportunities in an equitable manner. I adopt Hart, Shleifer and Vishny's (1997) model of the tradeoffs between public and private service provision in a context of incomplete contracts as the basis for my analysis and interpretation. The central premise is that the profit motive tends to increase the efficiency of private providers of public services, but often with negative effects on quality and social objectives.

Castro (2005) correctly identifies the perpetuation of social inequality as one of the most salient higher education market failures in Brazil. Brazil's higher education system has inherent equity issues. Public universities are the most prestigious and are tuition free, while in comparison private institutions tend to offer programs of lower quality at a high cost for students. Traditionally, students whose families can afford high-quality private high school education and entrance exam preparatory courses have dominated public university enrollment, while lower-class, public high school graduates more commonly pay to attend second-tier private institutions or forego higher education altogether.

The objective of this master's dissertation is to evaluate the impact of a federal student loans program called Fundo de Financiamento Estudantil (FIES) on higher education enrollment. Changes to the FIES program in 2010 resulted in a dramatic increase in federal student loans. The political discourse that accompanied the FIES ramp-up touted student loans as a tool to democratize higher education opportunities. However, I have yet to identify an empirical study assessing whether the program has been successful in doing so. This question will be analyzed using data from an annual

higher education census carried out by a federal government agency that contains a wide array of information on higher education institutions, programs, teachers and students. Through panel regression analyses, I examine the FIES's impact on student enrollment and on the representation of public high school graduates at for-profit business colleges in the state of São Paulo.

This dissertation begins by reviewing the key theoretical frameworks for public versus private service provision before turning attention to the literature specific to higher education and student loans. I then provide a contextual overview of higher education in Brazil and the public policies related to the sector's expansion, with special attention paid to FIES. Next, I present the hypotheses, that FIES accounts for a significant increase in student enrollment, but not a significant representational increase of public high school graduates, at for-profit business colleges in São Paulo. A section that describes the data and methodology utilized to test the hypotheses precedes the descriptive statistics and regressions. In a nutshell, the results indicate that FIES caused a modest increase in enrollment, but did not cause a significant percentage increase in enrollment of public high school graduates. I conclude by discussing the results, their implications for theory and practice, the study's limitations and suggestions for a future research agenda.

## 2 LITERATURE REVIEW

### 2.1 PUBLIC VERSUS PRIVATE SERVICE PROVISION

Many of the theories and arguments that neoclassical economists utilize to study optimal service provision, including the public versus private question, have their roots in the classic “make or buy” concept that Ronald Coase originally proposed in his theory of the firm (1937). The basic idea is that firms can choose either to produce a given good in-house or to buy that same good from the market. The firm’s choice should be informed by weighing the costs of producing the good (for example, the costs of the raw materials, the labor, and tools necessary for production) versus the costs of obtaining the good through the market (for example, the costs of finding a supplier, negotiating a price, and enforcing a contract). When the costs of obtaining the good through the market are low relative to the costs of producing the good, the firm would likely choose to “buy” the good through the market to optimize its limited resources. In contrast, when buying in the market is relatively expensive, the firm’s optimal choice would likely be to “make” the good on its own. This rationale gave rise to transaction-cost economics, made famous by Oliver Williamson (1971, 1979), which can also be utilized to analyze the firm’s choice of directly providing a given service or contracting a third party to do so on the firm’s behalf. Although the purpose of government differs from that of private firms, transaction-cost economics provides a useful framework for governments to ponder the most effective arrangement for providing services to its citizens.

A second concept that has been fundamental to the literature on optimal service provision is that of the principal-agent problem. An agency relationship is “...a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent” (JENSEN; MECKLING, 1976, p. 308). If both the principal and the agent undertake opportunistic behaviors to maximize their personal welfare, as is assumed, there will be instances of misalignment between the interests of the principal and those of the agent. Efforts to control the agent’s behavior in these instances, through monitoring or establishing incentives, for example, are costly, and even when the price is paid there will still be cases in which the agent’s decisions do not maximize the principal’s welfare (JENSEN; MECKLING, 1976).

Authors such as Hart (1995, 1997, 2007), Aghion and Holden (2011) and Bao and Wang (2012) have extended the transaction-cost and principal-agent perspectives and defend what is known as the incomplete contracts theory. At the heart of the theory is the assumption that two parties looking to come to a contractual agreement are not entirely rational economic actors and are unable to foresee all possible contingencies (HART, 1995). Since the parties are unable to predict all possible future events or circumstances and are unable to commit to how they will behave in any given scenario ex-ante, they argue that contracts are inherently incomplete. Incomplete contracts elevate the cost of contracting services through the market, since the contract alone is often insufficient to force the agent to behave according to the principal's desire and other effortful mechanisms may be necessary. The tendency for the agent to pursue opportunistic behavior ex-post serves as an argument for vertical integration (i.e. the "make" option), which lessens the adverse effects of the agent-principal conflict (KLEIN; CRAWFORD; ALCHAIN, 1978).

If, as these scholars profess, a contract cannot specify all the possible uses of an asset ex-ante, then the asset has potential to produce unforeseen residual gains, and the party that owns the asset would have control and bargaining power over how those residual gains would be allocated (AGHION; HOLDEN, 2011). The issue of property rights becomes central to the discussion of optimal service provision. Grossman and Hart (1986) argue that property rights should be established in a manner that minimizes efficiency loss of the service provision. Ownership strengthens the incentive to innovate and invest in upgrading the service operation because the owner will control more of the resulting monetary gains. In contrast, if an agent is contracted to provide a service, his or her incentive to improve the service is weaker since he or she may not reap the rewards of the innovation (SHEIFLER, 1998). Hence, the right to exploit residual gains is a strong incentive to maximize efficiency.

Hart, Shleifer and Vishny (1997) apply this perspective as they explore the question of whether a given service should be provided by the public sector versus the private sector. They coin the term "non-contractible quality", which describes the aspects of service quality that are not easily written into contracts, and argue that the decision to provide a service through public or private mechanisms should depend on how ownership structure affects the service provider's costs and incentives to deliver non-contractible quality. The concept of non-contractible quality encompasses both

economic and social aspects, since the government is responsible for promoting the population's interests in both dimensions, regardless of whether it is directly providing a service or contracting the service out to a private entity.

A related argument posed by Oliver Williamson (1999) introduces the concept of "probity" to this discussion. Williamson refers to probity as "the loyalty and rectitude with which the...transaction is discharged" and asserts that probity "...implies a high standard of integrity, to include professional excellence, in the organizational unit to which a task has been assigned." As is the case with non-contractible quality, it is important to consider hazards of probity when analyzing the possibility of contracting out a given public services to private providers. Probity may not be of utmost relevance in all service contracts, but it is paramount in contexts that involves highly incomplete, long term contracts in which loyalty and process integrity are essential. Sovereign transactions like foreign affairs serve as an example. A moral breach of the contract in such a context can have serious transaction cost implications. In these cases, a public governance structure is best suited to protect against probity hazards (WILLIAMSON, 1999).

Traditionally, the government has directly provided goods and services when they are considered to be strategic for the population's social well-being (RUNDALL; LAMBERT, 1984). It is possible, though, for the government to pursue an alternative role. It can contract a private business to provide the same goods or services and work towards the same economic and social objectives instead of providing them directly. In a theoretical world where contracts are complete, the decision about these two alternative modes of service provision would be straightforward. Since the contract would mandate how the business should perform in all possible situations, the "make or buy" question would boil down to whether the government or the business was most efficient at carrying out the government's socioeconomic objectives (HART, 2003). However, in the context of incomplete contracts, a deeper analysis of the incentives promoted by residual control rights and the implications for social wellbeing is recommended.

A provider of public services can essentially modify the service through two actions: improving the quality of the service and reducing the cost of the service. These two actions have an inverse relationship. Improving the quality of the service typically increases the cost, and reducing the cost of the service typically decreases the quality.



When the government owns and provides the service, public employees have little incentive to either reduce costs or improve quality, since they are not likely to be compensated for the efficiency gains that result from their actions. On the other hand, when a private business provides the service, the private employees have excessively strong incentives to reduce costs, since they will be compensated for efficiency gains. These workers have weaker incentives to improve quality, since improving quality is more costly and may require additional contractual permissions. Therefore, under private ownership, employee incentives tend to lead to cost reducing actions, and the associated adverse effects on non-contractible quality are often ignored. It is true that the cost-reduction incentives that accompany private provision tend to make private provision a cheaper option than public provision. In the context of incomplete contracts, however, the question of private provision versus public provision generally comes down to the extent to which the private provider's cost reductions damage non-contractible service quality, and the resulting effect on the social and economic objectives related to the service (HART; SHLEIFER; VISHNY, 1997). Government services are often held accountable for distributional or equity objectives (WILSON, 1989), for example, and thus the impact of cost reduction actions on these objectives should be taken seriously.

Around the time these theories were being developed, a global trend that came to be known as New Public Management was gaining popularity and altering public-private interactions. New Public Management was a response to the growing perception that government processes, which involved excess bureaucracy, and low government worker accountability, led to undesirable inefficiencies in public agencies. While not always uniform in its description, New Public Management generally incorporated the following elements: the disaggregation of huge agencies into smaller units; increased competition between government units and also between government units and the private sector; increased use of private sector management techniques; increased conscientiousness and discipline of resource expenditures; increased discretionary power and active control from top managers; more explicit and measurable performance standards; and a stronger focus on output as compared to processes (HOOD, 1995).

The trend also consisted of the government's increased tendency to outsource the provision of certain goods or services. This outsourcing could take different forms.

One option was privatization, where the government delegated the provision of certain goods or services to a free or regulated market. Another option was for the government to diminish its role in the service provision and to essentially become of a financier and supervisor of contracted private organizations that were responsible for delivering services to the population (CABRAL; LAZZARINI; AZEVEDO, 2010).

## 2.2 PUBLIC VERSUS PRIVATE PROVISION OF HIGHER EDUCATION

Education is often a central example in the debate about private provision of public services. Like sanitation, security and health, education has often been conceptualized as a public good with social value. International organizations such as UNESCO (2009) have defended this view. In democratic societies, schools impart the values and knowledge necessary for a participatory citizenry, serve as a tool to level the playing field between individuals with different socioeconomic backgrounds, and lay the groundwork for cultural, scientific and economic progress which is fundamental to a nation's wellbeing and development (LEVIN, 1987).

Yet, education also influences private outcomes. Just as schools can promote national values, they can also promote different political, social and religious beliefs that a family wishes to transmit to its children (LEVIN, 1987). Education is also shown to increase an individual's productivity and earnings in the labor market (BECKER, 1964). Haveman and Wolfe (1984) identify numerous additional private benefits of schooling, including better health, consumption efficiency, trainability and access to information.

Proponents of increased private management in the school system suggest that publicly employed teachers often have little incentive to undertake quality innovations, especially when protected by unions. Such proponents also contend that increasing competition within the school system would be healthy; mechanisms such as school choice combined with vouchers paid for by the government would allow families to select the school their children attend, motivating schools to compete for students based on quality, which would increase incentives to innovate and decrease the likelihood that schools would pursue cost reductions that had significant negative impacts on quality (HART; SHLEIFER; VISHNY, 1997). Hoxby (1994) presents

evidence that competition between public schools helps raise the quality of education provided.

Critics of increased involvement of the private sector argue that private management would focus too narrowly on cost, and this would lead to undesirable behaviors. For example, schools might replace expensive, effective teachers with less expensive, less effective teachers, find ways to reject or pay inadequate attention to children with learning or behavioral problems and are thus costly to educate, refuse to invest in high quality didactic materials or take other actions that deteriorate educational quality. Additionally, increased privatization might lead to unequal access to good schools and sorting of students by ability, which has broader negative implications for social equality (HART; SHLEIFER; VISHNY, 1997).

Considering the long history of higher education, for-profit institutions are a relatively recent phenomenon that only began to draw attention from academics in the late twentieth century. This may likely be a function of the fact that only in modern times have societies aimed to popularize their higher education systems. A dramatic shift of serving a relatively small elite to serving the masses would require higher education systems to adopt new funding models, especially if a certain standard of quality is to be maintained (SHATTOCK, 1999). Castro (2005) insists that besides the issue of financial resources, governments do not have the competencies necessary to thrive in such a dynamic, diverse and internationalized sector. In their study on South Korea, a country often cited as a highly successful case of education expansion, Kim and Lee (2006) contend that public universities were not capable of amplifying their programs to attend a rising number of high school graduates, and that a private market was necessary to respond to the high demand.

Levy (2011) developed a useful framework for identifying three principal types of private universities: *identity*, *elite/semi-elite* and *demand-absorbing*. Identity refers primarily to higher education institutions associated with a religious denomination, which have existed for many years and are non-profit in nature. Elite private universities are quite rare outside of the United States, but semi-elite private universities are becoming more common throughout the world.

Demand-absorbing, the largest of Levy's three private university types, refers to low-cost private providers that enter the system to attend a growing demand for higher

education. Demand-absorbing higher education institutions are not exclusively for-profit, although the overwhelming majority is. Some demand-absorbing schools are legally established as non-profits but function as if they were for-profit, channeling their excess revenues to beneficiaries through various mechanisms. There is also a huge amount of variation in terms of demand-absorbing universities; on one end of the spectrum, there are low-quality institutions, sometimes called “fly-by-night, diploma mill, garage, or other suitably disparaging names”, while on the other end there are institutions that are currently non-elite, but aspire to reach semi-elite status. What demand-absorbing higher education institutions have in common is that they develop in a context where the state or market suddenly establishes a demand so high that the existing supply, i.e. public or non-profit university systems, cannot expand sufficiently. Governments are forced to decide whether to deny part of their citizenry access to higher education or to allow for the development of a private higher education market, which may well be the only realistic option for the system to grow rapidly (LEVY, 2011).

The central issue of increasing access to higher education through market mechanisms lies in the belief that so many of the new, for-profit institutions provide low quality academic services, in comparison to their public and non-profit peers. And many of such institutions generate impressive profits with little transparency. The standardization and implementation of sufficient government regulation and quality control often lags years behind the quickly expanding market. Thus, while students that might not otherwise have access to higher education are now enrolled, the nature and value of their educational experience may be entirely different from that of the students at a public or non-profit university (LEVY, 2011).

Claudia Goldin (2012) concluded that for-profits in the United States have had both positive and negative effects. They have been fundamental to expanding access to higher education, augmenting the supply of skilled workers and driving innovations in online education. With help of federal student grants and loans, they have reached underserved and disadvantaged populations. Most of the students served are satisfied with their experiences. On the other hand, in the United States for-profit HEIs tend to be more expensive than the public universities, and students who study at for-profits have a higher chance of failing to secure employment. They are also more likely to rack up debt and less likely to pay back their debt than public or non-profit college graduates. Goldin (2012) suggests that although it is no simple task, governments

should aim to regulate the for-profit higher education industry in a manner that stifles predatory behavior without eliminating incentives for innovation.

Calls for government regulation of higher education are most prominent for the demand-absorbing, for-profit subsector. Market failures, such as information asymmetry, may clearly persist. Given their perceived alternative, i.e. no higher education, and no quality baseline for comparison (especially if the student is a first-generation college student from a shoddy primary education system, which is often the case in places like Brazil), clients may be easily satisfied or complacent. Competition between institutions may exist less in the dimension of the quality of the educational services provided and more in the capturing of market-share, which could lead to more investment in marketing, student financing and acquisitions and less investment in the educational experience. The case for regulation is strongest when taxpayer dollars are in one way or another subsidizing the industry, as those funds could theoretically be used to help expand the public or non-profit systems, and when foreign penetration exists (LEVY, 2011), since foreign investors presumably have high interest in short-term profits and a minimal stake in society's longer-term human capital investments. Opponents of government regulation argue that regulation is costly, inefficient, stunts growth, and often leads to a one-size-fits-all approach utilized throughout the entire higher education system (LEVY, 2011).

The discussion about public versus private provision of higher suggests that if societies wish to make rapid and meaningful increases in their higher education enrollment rates, allowing for for-profit institutions is a reasonable means to do so. There are common market failures associated with for-profit higher education, though, such as information asymmetry, reduced higher education functions (i.e. less research, more marketable programs) and the perpetuation of social and economic inequality. It is thus necessary for governments to regulate the market and create policies that help correct for market failures.

At a purely conceptual level, many consider it unreasonable to spend public funds on for-profit HEIs. They may argue that since the demand-absorbing sub-sector is so large, public financial support would be very costly and undermine the prime service justification of for-profits' existence: increased supply without a heavy financial burden on the state. The fact that many for-profit HEIs are weak or even fraudulent

complicates the case for government subsidies. In this context, "...expanded access might be preferable through public sector expansion" (LEVY, 2011). While in theory public sector expansion may often be preferable, it may not always be practical. And if for-profits already have a significant presence in the higher education system, it is plausible that creating public policies and programs that improve the social utility of these institutions can be a good public investment. One way governments subsidize the higher education industry is through tax breaks. Another form of public support, which is analyzed in this study, is student credit.

### 2.3 THE RATIONALE FOR STUDENT CREDIT

Student loans have become a policy tool to increase access to higher education, especially for young men and women whose resource levels would impede them from attending college without some sort of financial aid. Government-backed student credit is common in the United States and is on the rise in other parts of the world, including Pakistan, New Zealand and Brazil (Levy 2011). Student loans help address a commonly cited market failure of private higher education provision, namely, the perpetuation of social inequality. If governments decide to expand higher education opportunities for the lower classes through market mechanisms, a major barrier lies in the fact that private universities typically survive through high tuition fees, and many lower-class students may not be able to afford such fees. If lower-class students are not competitive enough to win scholarships or seats at tuition-free universities, and if they aren't wealthy enough to pay for tuition, expanding the higher education system through market mechanisms runs the risk of leaving these young men and women behind.

As previously mentioned, education can be understood as an investment in human capital. This investment can result in future public benefits (i.e. informed citizenry, social equity, scientific progress, etc.) and future private benefits (i.e. greater earnings, better health, smarter consumption, etc.). Investing in higher education comes as a cost, however. This cost includes direct costs (i.e. tuition, school materials, transportation, etc.) and opportunity costs (less time to work and earn income, for example). If the individual is not able to cover the costs of the investment in higher education, he or she needs to find a way to finance the costs through lenders. Since

the student does not have capital to offer as collateral, and pledging human capital as collateral can lead to legal issues, credit markets for higher education are quite complicated. Private lenders do not have security mechanisms and therefore demand higher interest rates or refuse to make the loan all together (DYNARSKI, 2015). Governments, on the other hand, have an interest in promoting education among their population and have less incentive to profit from student credit, which justifies their offering of loans with fair interest rates.

While in theory student credit makes sense, there is a lack of evidence about the effectiveness of student credit on access to higher education. This might be explained by selection bias; students that choose to take out higher education loans likely have difficult-to-measure attributes that differentiate them from observably similar students that do not take out loans (DYNARSKI, 2015), and therefore there are few situations in which valid study designs can be constructed. Of the well-designed studies that do exist, however, the evidence suggests student loan programs to seem to facilitate higher education enrollment. In Chile, eligibility for loan programs was estimated to increase a student's likelihood of going to college by 20 percentage points (SOLIS, 2012). This same 20 percentage point effect was also found in South Africa, even though the eligibility criteria was different than in Chile (GURGAND; LORENCEAU; MÉLONIO, 2011).

Student credit programs may also bring about unintended side effects, though. A review of the impact of student credit in the United States suggests that higher education institutions who are eligible for federal student aid programs charge tuition rates that are roughly 78% higher than comparable institutions that are not eligible for such aid programs (CELLINI; GOLDIN, 2013). As previously mentioned, individuals who graduate from for-profit institutions are also more likely to default on their student credit loans (GOLDIN, 2015). Evidence suggests that increased availability of student credit caused an increase in tuition fees in Brazil as well (DE MELLO; DUARTE, 2015). It is also plausible that government student credit programs shift market dynamics in a way that for-profit HEIs, guided by rent-seeking behavior, focus their competitive strategies away from increasing the quality of their educational services and towards marketing or other areas that maximize student enrollment, and therefore, revenue from tuition.

### 3 EMPIRICAL CONTEXT AND HYPOTHESES

#### 3.1 HIGHER EDUCATION IN BRAZIL

Higher education in Brazil, traditionally a privilege of the elites, has experienced major transformations in recent decades. Beginning in the second half of the 20<sup>th</sup> century, Brazil initiated a long process to incorporate its popular masses into the school system. A symbolic stride was the establishment of education as an equal right of all Brazilians by the 1988 Constitution. Between 1980 and 2010, the percentage of children between ages 7-14 attending school rose from 67.17% to 96.9% (IBGE). The bulk of this rise in attendance rates was accomplished through expansion within the public school system. In 2010, the government directly provided primary education to 43.99 million children, accounting for 85.3% of the total coverage (INEP).

Growth has also been impressive at the higher education level, but the public sector has assumed a much smaller role in terms of direct provision. As a part of the *Lei de Diretrizes e Bases da Educação Nacional (LDB)* in 1996 (Lei no 9.394), the government deregulated aspects of the system, facilitating private actors' ability to open new programs, and authorized higher education institutions (HEIs) to operate as for-profit enterprises. Multiple factors help explain the shift in the relationship between the public and private sectors with regards to higher education provision. For one, the higher education reform was part of a broader set of reforms influenced by the New Public Management logic described in section 2.1, in which the scope of the state and the size of its bureaucracy was diminished under the leadership of Luiz Carlos Bresser-Pereira. The government's unpreparedness to attend the rising demand for post-secondary education opportunities, which can be attributed to a growing number of high school graduates and high rate of such graduates seeking further education opportunities at the time, helps explain this shift in the relationship between the public and private sectors with regards to higher education provision. All things considered, the private sector was likely a necessary partner to increase the supply of higher education programs in Brazil (CASTRO, 2006).

The 1998 *Plano Nacional de Educação* established the goal of achieving a 30% enrollment rate for the 19-24 year old population by 2008. In absolute terms, the plan's objective was to increase enrollment from approximately 2.7 million to 5 million in the span of 10 years (SCHWARTZMAN, 2002). Between 1997 and 2007, the number of



HEIs grew 153%. Broken down by sector, the number of private HEIs practically tripled while the number of public HEIs increased a mere 18%. The offer of seats in college programs increased 352% between 1997 and 2009, 103% at public HEIs and 448% at private HEIs (TACHIBANA; MENEZES-FILHO; KOMATSU, 2015). By 2013, the total number of students enrolled in college programs reached 6.15 million, 71.1% attended private HEIs (INEP). In 2015, nearly 5.3 million students attended for-profit HEIs, which is more than twice the number of students enrolled at for-profits in the United States (MARCUS, 2015).

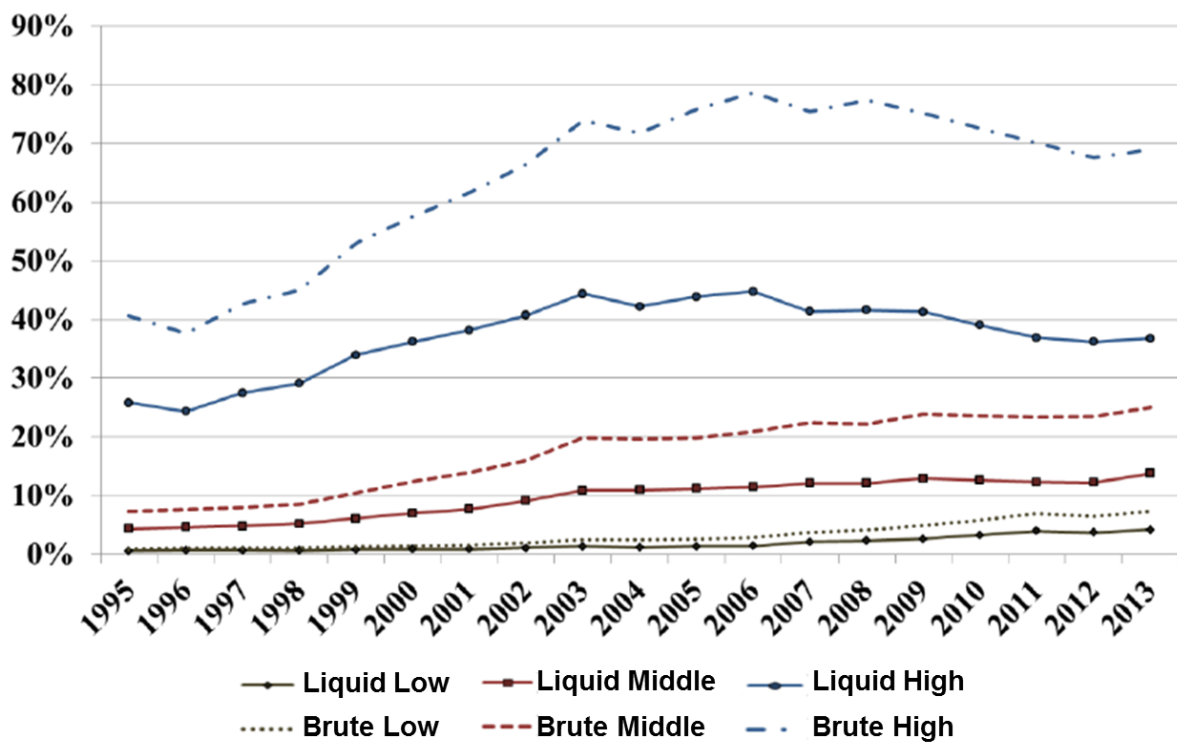
Brazil's multi-billion dollar for-profit higher education industry has experienced a strong wave of market consolidation over the past decade. In 2014, the two largest for-profit chains, Kroton Educacional and Anhanguera Educacional, merged to create the world's largest for-profit higher education company, worth more than \$8 billion and educating over 1 million students. 35% of Brazil's university students attend for-profit HEIs owned by the 10 biggest companies (HORCH, 2014). Higher education is now synonymous with big business in Brazil.

Despite the rapid growth, Brazil's higher education enrollment rates are still low by international standards. Brazil's gross enrollment rate in 2012 was 28.68%. By comparison, the United States's gross enrollment rate in the same year was 94.28%, and the average gross enrollment rate for Latin American countries was 43.8%. Brazil's liquid higher education enrollment rate, which considers only enrollment of students between 18 and 24 years of age, was 15.45% in 2012, which shows that a major proportion of higher education students are ages 25 or older. Between 2002 and 2012, Brazil's higher education gross enrollment rate rose more than its liquid enrollment rate, suggesting that the newly created seats in higher education programs were in large measure filled by non-traditional students (TACHIBANA; MENEZES-FILHO; KOMATSU, 2015).

Figure 1, which plots the gross and liquid college enrollment rates according to socioeconomic class, provides a clear picture of higher education access inequalities in Brazil. The first observation from this graph is that the upper class has much higher enrollment rates than the middle class, and that the middle class has much higher enrollment rates than the lower class. While enrollment rates for all three classes have increased since the mid-1990s, when HEIs were permitted to generate profits, these

increases differ by class. Between 1996 and 2003, the years immediately following the university reform, the upper class and middle class enrollment rates increased significantly, suggesting that recently liberalized private sector was in large part catering to the upper and middle class students. In this period, the liquid enrollment rate of upper and middle class students jumped from approximately 25% to 45%, respectively. The liquid enrollment rate of low class students, however, continued to hover slightly above 0%. The liquid enrollment rate of low class students in 2013 is roughly equivalent to that of middle class students in 1995.

**FIGURE 1**  
**College Enrollment Rates by Socioeconomic Class: 1995-2013**



Graph adapted from TACHIBANA; MENEZES-FILHO; KOMATSU (2015).  
Original data source: INEP, Censo da Educação Superior.

Menezes-Filho, Komatsu and Cabanas (2015) explain how household income is a major barrier to higher education for many Brazilian youngsters. As was mentioned in section 2.3, besides direct costs of higher education, attending college also entails a high opportunity cost. In other words, when enrolled in a higher education program,

it is very difficult to generate the same levels of income that he or she could generate when not studying. This opportunity cost has greater consequences for young adults from families with lower incomes than for young adults from families with higher incomes. The data shows that as parents make more money, the likelihood of their children enrolling in higher education increases, demonstrating that parents often cover the opportunity costs associated with their children's college educations (MENEZES-FILHO; KOMATSU; CABANAS, 2015). Not only are low-resource Brazilians less likely to start college, they are also more likely to drop out or take leaves from their higher education programs (TACHIBANA; MENEZES-FILHO; KOMATSU, 2015).

Although the number of higher education opportunities in the private sector have risen considerably, the data show that seats at private HEIs are not necessarily desirable compared to seats at public HEIs. Between 1996 and 2013, the average number of candidates per seat offered at private HEIs was 1.5, compared to 7.7 at public HEIs. The difference between these ratios is a reflection of the perceived difference in quality of instruction and competitiveness between the private and public HEIs. Reputation is one important factor that explains why young Brazilians generally prefer public HEIs. Another key factor is that public universities are free of charge. The choice between a high quality, free college education and a questionable quality, expensive college education is not a difficult one. Excluding some exceptional cases, young Brazilians prefer to attend a public HEI to a private one. The playing field for securing a coveted public university seat is far from level, however. Students whose families can afford to pay for high-quality private basic education and test-prep courses have a major advantage over students that attend low-quality public basic education in terms of higher education access. These characteristics of the higher education system contribute to the perpetuation of social inequality in Brazil (TACHIBANA; MENEZES-FILHO; KOMATSU, 2015).

### 3.2 FEDERAL PROGRAMS TO PROMOTE ENROLLMENT AND EQUITY

The Brazilian government has created various policies and programs to compliment the private and public HEI efforts to expand higher education enrollment

rates. FIES and PROUNI are two major examples. FIES, created in 1999, is a traditional federal student credit model, in which the government offers low-interest loans to students who have trouble paying for higher education programs. During its first decade of existence, FIES was a relatively small-scale program. FIES was not among the most popular student aid programs and the federal government committed few resources to it.

Created in 2004, PROUNI is a more innovative program in which private HEIs offer scholarships to low-income students, and in exchange, the government exempts these institutions from a number of taxes, including income tax and a number of social contribution taxes that they would otherwise be legally responsible to pay. Students whose per capita family income is 1.5 minimum wages or less are entitled to a full scholarship, while students whose per capita family income is 3 minimum wages or less are entitled to scholarships that cover 50% of the tuition fees. In order to be eligible for PROUNI, however, the student has to obtain a minimum score of 400 on a national exam known as ENEM. According to PROUNI's website, between 2005 and 2012, the number of PROUNI scholarship rose from 112,275 to 284,622. It is worth mentioning that students who are eligible for a 50% PROUNI scholarship also have the option to finance the remaining 50% of their college tuition through FIES.

In 2010, there were a number of important alterations made to the FIES program. The FIES loan grace period was extended from 12 to 18 months. A maximum interest payment of R\$50 due every three months during the utilization and grace periods was established. The amortization period was increased from two times the length of the loan period to three times the length of the loan period, plus an additional twelve months. Potential beneficiaries were allowed to apply for the loans at any time during the year instead of during a specific window. Finally, the annual interest rates dropped from 6.5% to 3.5% (DE MELLO; DUARTE, 2015).

The 2010 adjustments also stipulated the percentage of tuition fees that a student could finance through FIES according to family income. Students whose families earned 10 minimum salaries or less could take out FIES loans for the value of 50% to 100% of the tuition fees. Students whose families earned between 10 and 15 minimum salaries could take out FIES loans for the value of 50% to 75% of the tuition fees. Students whose families earned between 15 and 20 minimum salaries could take out

FIES loans for the value of 50% of the tuition fees. The exact value permitted was dependent on what percentage of per capita family income was being committed to the tuition. An important point here is that a wide range of students was eligible for some sort of FIES loan support, not only students from low-income families.

The changes made to FIES in 2010 had major repercussions in terms of the number of students seeking FIES loans as well as the amount of resources that the federal government provided to sustain the program. De Mello and Duarte (2015) calculate that the number of new FIES contracts increased elevenfold between 2009 and 2012, followed by an additional 48% increase in 2013. They also point out that FIES disbursements increased 400% between 2009 and 2012. In sum, the scope and cost of the program grew dramatically post-2010. This boom in government-backed college loans was considered to be favorable for the dynamic for-profit higher education sector.

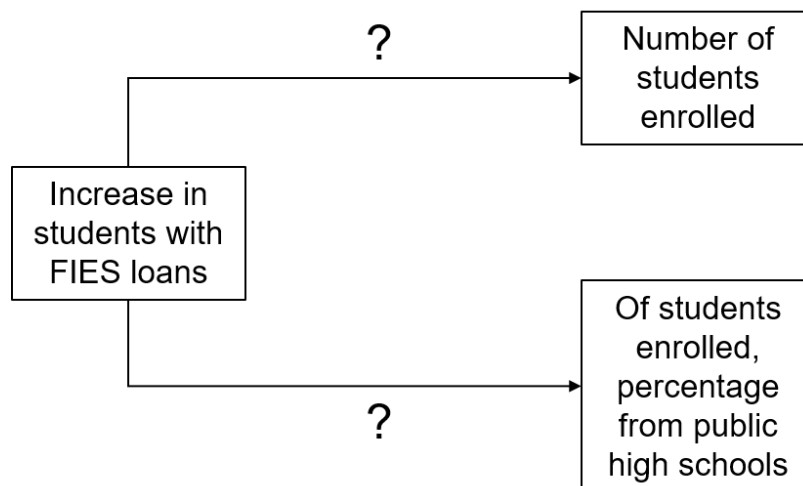
The federal government also pushed to expand the number of students at public universities, but the scale at which the public sector could amplify their seat offerings was relatively small compared to that of the private sector. The *Programa de Apoio a Planos de Reestruturação e Expansão das Universidades Federais*, known as REUNI, was implemented in 2007 in order to increase access to public universities through making more efficient use of their resources. Between 2007 and 2016, the federal universities increased the number of students enrolled in bachelor's programs by 60% (TACHIBANA; MENEZES-FILHO; KOMATSU, 2015). In 2012, public universities also adopted a quota system to help address the access inequity issues highlighted in the final paragraph of section 3.1.

### 3.3 HYPOTHESES

This study seeks to assess whether Brazil's federal student credit program, FIES, helped democratize access to higher education since its ramp-up in 2010. To understand the impact of FIES on higher education opportunities, I consider two distinct questions: 1) Did the FIES program explain a general increase in higher education enrollment? 2) Was FIES successful in increasing higher education

enrollment among the country's underprivileged population relative to middle and upper class Brazilians? Figure 5 represents these two central questions visually.

**FIGURE 2**  
**Variables of Interest Relational Diagram**



Before digging deep into these two questions, it is worth revisiting the program's purpose considering the context in which it is situated. Since the mid-1990s, the Brazilian government has been clear about its intent to increase higher education enrollment. Most Brazilians would agree on the merit of this objective. When it comes to *how* to increase higher education enrollments, though, opinions diverge. While some advocate that allowing the market to function freely will lead to an expansion of higher education opportunities, others question the intentions and abilities of private entrepreneurs to provide legitimate education services (MANCEBO; VALE, 2013). How, then, should the public and private sectors behave and interact when it comes to higher education provision in Brazil?

As described in Section 2.1, Hart et al (1997) develop a model rooted in incomplete contract theory that provides key insights into the question about optimal service provision. The model lies on the premise that a service provider can essentially innovate in two ways, either through reducing costs or through improving quality. The authors suggest that under private ownership, employees have excessively strong incentives to reduce cost, which overpower their weaker incentives to improve quality and often lead to low-cost but substandard services. Under public ownership,

employees do not have strong incentives to reduce costs nor to improve quality, and are therefore rarely innovative. Since both ownership structures have their downfalls, the superior arrangement is that which does less damage given the specific context (HART; SHLEIFER; VISHNY, 1997).

Analyzing higher education in Brazil during the mid-1990s with this lens, one can understand why the government authorized the development of a for-profit higher education sector. The government had limited resources, per-student costs in public universities were very high, and government employees did not have incentives to reduce costs in a way that would allow for a significant expansion of the system. Although for-profit higher education institutions have excessive incentives to reduce costs, and these incentives would likely have negative effects on educational quality, making progress toward enrollment rate goals through private incentive was perceived by many as a less damaging alternative than denying enrollment to an overwhelming percentage of young Brazilians seeking out post-secondary education opportunities. The impressive jump in enrollment numbers during past two decades have proven the private sector's ability to transform the higher education system.

The private sector's ability to provide higher education opportunities does not alone democratize access, however. While Brazil's public universities are supported by taxpayer dollars and free of charge to students, private HEIs depend on student tuition in order to generate income and provide education services. The quality of public HEIs is also widely considered much better than that of private HEIs. Thus, in Brazil's higher education system, public HEIs are superior to for-profit HEIs on the two key dimensions of quality and cost of education. This leaves students from low-income families at a major disadvantage in terms of their ability to compete for a spot at a public HEI, since they do not have the resources necessary for high quality basic education or entrance exam preparatory courses. They are also disadvantaged compared to peers from wealthier families in their ability to pay tuition at a private HEI, and therefore confront major barriers on their quest for higher education opportunities in general.

Government policies and programs have looked to address the social inequities of higher education in Brazil. The quota system implemented in 2012 intends to increase the number of underprivileged youth who gain access to public universities. PROUNI is also designed to guarantee higher education opportunities to low-income

students, and FIES aims to lower financial barriers to private HEIs and foster human capital investments. Changes made to the FIES student loan program in 2010 lowered the interest rates, lengthened the loans' grace and amortization periods, and made the subscription process more flexible. These modifications should have increased the ability of students from low-income families to enroll in private HEIs, and in the years following these measures, the number of students with FIES contracts increased dramatically. It is not clear, nevertheless, whether this radical uptake of FIES truly had a democratizing effect.

A direct transposition of Hart et al's (1997) model to the context of higher education in Brazil would entail an analysis of the efforts that for-profit HEIs (the "agent") undertake in terms of cost efficiency and service quality, compared to the effects that public HEIs undertake in these same dimensions, which is beyond the scope of this master's dissertation. Still, since non-contractible quality encompasses the impact of the service on social outcomes, one can draw a parallel between the theoretical "cost versus quality" tradeoff faced by private service providers with what I refer to as the "profit versus impact" tradeoff that for-profit HEIs face. The broader interpretation of Hart et al's model adopted in this study focuses on the agent's social impact outcomes as the main indicator of non-contractible quality, instead of explicitly measuring the agent's efforts to deliver non-contractible quality, assuming there exists a direct and consistent link between efforts and outcomes.

The same principles of incentive dynamics that Hart et al affirm exist under public and private ownership structures apply to Brazil's higher education system, especially after private HEIs began operating as for-profit enterprises. For-profit HEIs can generate handsome returns if they succeed in delivering programs to a high number of students at relatively low operating costs, and the strong incentives to keep operating costs low overbear weaker incentives to improve service quality. Especially in an undersupplied market, companies that increase their market share and achieve economies of scale may be the most likely to profit from growth, and the clearest path to reaching scale is through a cost leadership strategy. Therefore, the profit incentive should lead for-profit HEIs to focus on enrollment rates more so than ensuring that their programs are providing students with the best educational experience possible. Profit is also more dependent on the quantity of students the HEI educates than the



type of students they educate. In other words, they may sacrifice the impact that they could have on their students and on society for financial returns.

If one assumes that Brazil's for-profit HEIs are first and foremost concerned with enrolling tuition-paying students to maximize profits, then it follows that they would have little interest in educating students who can't afford their services. Thus, there may be a contradiction between the government's objective of increasing higher education enrollment in a socially equitable manner and its reliance on the private sector to do so. In a free market, for-profit HEIs gravitate towards profit and away from impact, which is why government intervenes. The FIES program attempts to transform for-profit HEIs into institutions that educate an increasing number of underprivileged college students and, as a result, help decrease social inequality. A greater number of high-need students with FIES loans would not negatively affect the revenue streams of for-profit HEIs, as the government pays in full the tuition of each student with a FIES contract, so there is little downside from the HEI's standpoint. In theory, FIES offers for-profit HEIs the possibility to simultaneously increase their social impact and generate profits.

Given FIES lessens financial barriers and thus facilitates enrollment in higher education, and that there was a major increase in students with FIES contracts between 2010 and 2014, one would expect that the FIES ramp-up had a positive impact on enrollment rates during this period. Thus:

***Hypothesis 1: FIES was associated with a significant increase in overall enrollment rates at for-profit higher education institutions (HEIs).***

Hypothesis 1 is called the "profit" hypothesis, since a general increase in the number of students attending a for-profit HEI results in an increase in revenue.

While FIES was especially significant for students from lower-income families, the program's 2010 design did not restrict federal student credit to such students. Students from middle to upper-income families also had the right to FIES loans. In isolation, the fact that students from a wide range of social backgrounds were eligible for FIES would not undermine the basic rationale that the program would benefit students from lower-income families more so than other students. Students from

families with less restraint on human capital investments would depend less on government loans and therefore be less likely to subscribe to FIES.

However, the fact that the alterations made to the FIES program in 2010 dropped the annual interest rate of loans from 6.5% to 3.5% could have attracted students from middle and upper-income families to the FIES program. Considering that Brazil's average inflation rate between 2011 and 2014 was 6.9%, such interest rates make the loans highly appealing from a financial perspective. With inflation rates at nearly double the interest rates, it was cheaper to pay higher education tuition through FIES loans than upfront, regardless of the socioeconomic status of the student's family. It is also possible that middle and upper-income families were more likely to understand the financial benefits of FIES loans than lower-class families, which would increase their representation as participants in the program.

A fundamental component of this study is to analyze how FIES benefited students from low-income families compared to those from middle to high-income families. Since students that study in public high schools usually come from families that are not able to afford tuition at private high schools, this study utilizes students who graduated from public high schools as a proxy for students from low-income families. To evaluate whether FIES was successful in democratizing access to higher education, I test how the program affected the enrollment of students who graduated from public high schools compared to the enrollment of students who graduated from private high schools in for-profit HEIs.

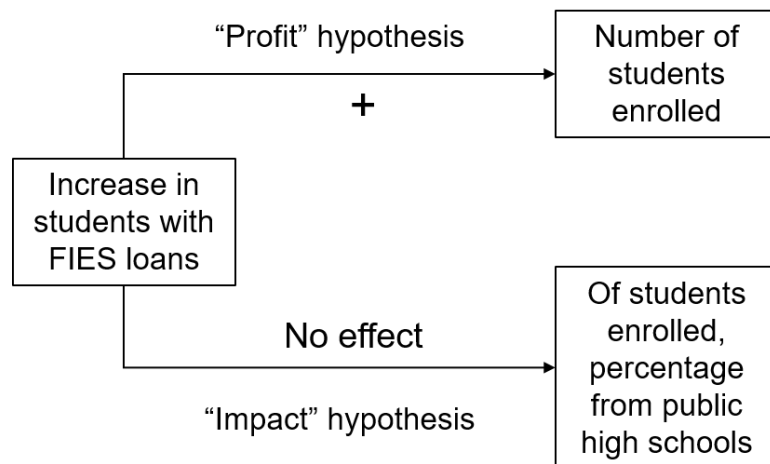
Recall from section 3.2 that the 2010 FIES alterations allowed for students from families that earn up to 20 minimum salaries to be eligible for the program's loans. Given that there was no contract or regulation between the government and the for-profit HEIs regarding the need for the HEIs to utilize the FIES program to enroll more low-resource students, the question becomes whether or not FIES affects the HEIs' incentives to enroll low-resource students. If the HEIs were to assume the credit risk, it would be plausible that HEIs would actually prefer to enroll high-resource FIES students over low-resource FIES students because the high-resource students are less likely to default on their loan payments. Since the federal government assumes the risk of FIES loans, however, it should not matter to the HEIs, strictly in the financial sense, whether they enroll high-resource or low-resource FIES students. Not convinced that FIES benefitted low-resources students more so than high-resource

students, but also doubtful that FIES was more beneficial to high-resource than low-resources students, the second hypothesis states:

**Hypothesis 2:** *FIES did not have a significant effect on the percentage of students who graduated from public high schools attending for-profit HEIs.*

Hypothesis 2 is called the “impact” hypothesis, as a significant increase in the number of students who graduated from public high schools attending for-profit HEIs relative to the number of students who graduate from private high schools due to the program would demonstrate that FIES led for-profit HEIs to have a positive impact on the Brazilian government’s social objectives. The expected effects of hypotheses 1 and 2 are depicted in Figure 6 below.

**FIGURE 3**  
**Hypotheses Diagram**



## 4 DATA AND METHODOLOGY

### 4.1 DATABASE

The data utilized in this study comes from the Censo de Educação Superior, a publicly available higher education census carried out annually by the Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (INEP), a federal government agency linked to the Ministry of Education. The census contains a wide array of information on higher education institutions (HEIs), programs, teachers and students, which is collected through questionnaires filled out by the HEIs as well as by data imported from the Sistema e-MEC, an electronic system created for higher education regulatory processes. After the HEIs fill out and submit the questionnaires, INEP goes through multiple rounds of review to verify the consistency and accuracy of the data. After all the data has been verified and finalized, an initial statistical synopsis is published before the micro data is made publicly available for download at the INEP website. At the time of this study, carried out in the first semester of 2016, the micro data for the Censo de Educação Superior was available for the years 1995 through 2014. The only data used in this study not contained in the Censo de Educação Superior is data on the GDP and GDP per capita of the municipalities of interest, which was obtained from São Paulo's Fundação Sistema Estadual de Análise de Dados (SEADE), a government organ that makes statistical information on municipalities in the state of São Paulo publicly available.

The Censo de Educação Superior from years 2010 to 2014 is used to construct an original panel dataset. I begin with 2010 for two reasons. First, the legislation that ramped up FIES was passed in 2010 and college programs would only then begin to adjust in 2011. So, to have measures on the variables of interest before the FIES ramp up means that I need to collect data from a year before 2011. Second, the census only began to collect information of utmost importance to this study, such as whether the student graduated from a public or a private high school, beginning in 2010. Thus, 2010 is the best year from which to start my study. 2014 was chosen as the end year for numerous reasons. First, 2014 is the most recent year for which the census information has been made publicly available. Choosing 2014 instead of 2013, 2012 or 2011 will allow me to evaluate the impact of FIES from a longer time horizon and therefore give us a more accurate reading. Finally, in 2014 the FIES program was at

its peak in terms of number of federal student loans conceded, so I am able to analyze the effects from the FIES ramp-up from its beginning to its peak.

The unit of observation in this study is a college program in a particular year. Since I am ultimately concerned with how FIES affected access to higher education programs, I use the program as the unit of observation and analyze its enrollment rates and the percentage of its student body that graduate from public high schools, among other variables that will be described in more detail in the following section. Any observations where enrollment rates are less than five are considered to be undesirable outliers and are excluded from the dataset. I focus only on traditional (not online) bachelor degree programs at for-profit higher education institutions, given for-profits are growing faster than public and non-profit institutions, already account for more enrollments than the other two categories combined, and align with this study's theoretical framework for understanding the effect of profit motives on service provision. For-profits are generally less competitive than public and non-profit institutions, and therefore their student bodies are composed of more students from lower-income families that did not have the means to attend private high schools or prep programs for college entrance exams.

To simplify my data collection and analysis, I decided to focus solely on business-related programs in the state of São Paulo. In the data, business-related programs are those that fall under the international classification of specific academic area (OCDE/Unesco/Eurostat) of "Commerce and Administration". This specific academic area was chosen because of the students who study at for-profit institutions, more enroll in programs that fall under this classification than any other. In 2014, 33.5% of the students enrolled at for-profit institutions in Brazil are studying in programs classified as "Commerce and Administration". The sample is restricted to the state of São Paulo to limit the variance of characteristics between programs and local conditions, which might include cultural differences, business environment, supply and demand, competition and tuition prices. Since Brazil's higher education system differs by region and the Censo de Educação Superior has limited variables to control for regional variations, I hope to keep the programs in my sample as similar to one another as possible to maintain internal validity. A consequence of this design is that the study's results cannot be generalized to describe the effects of FIES on other programs and in other states

Since these are very large datasets, especially the student dataset, which has information about every single student at the higher education level in Brazil, Stata version 14 was used to process and filter the data. After the data was filtered into a workable size, an original database of panel data was organized in Microsoft Excel. Once the data was merged, filtered and sorted in Stata, I kept only the variables and observations of interest and export into excel format. I created a page for each year of exported data in the excel file, as well as a page that compiled data from all of the years, sorted by the institution-program pair. With this set-up, observing how the variables of interest evolve within a given program over time was facilitated.

#### 4.2 DEPENDENT VARIABLES

This study utilizes standard variables from the Censo de Educação Superior, variables that are derived in Stata, and variables on GDP and GDP per capita of the municipalities of interest from SEADE. The variables of interest that were necessary to derive include the total number of students in a given program with FIES contracts, with full PROUNI scholarships, with partial PROUNI scholarships, with some other form of financial assistance, that studied at public high schools and that studied at private high schools. I also derived percentage variables for the same pieces of information.

The dependent variables, first for the “profit” hypothesis and then for the “impact” hypothesis, are:

*Number of students enrolled in the program.* I focus on the number of students currently enrolled in the program, excluding students that are on leave. The choice to only count currently enrolled students was based on the fact that students on leave are not paying tuition at the time of the study. Since this dependent variable is used to test the profit hypothesis, it is important to count only the number of students that are currently generating revenue for the HEI.

*Percentage of public high school graduates enrolled in the program.* For each program, I add the number of students that indicated that they attended public high school to the number of students that indicated that they attended private high school. I then divide the number of students that indicated that they attended public high school

by the sum to calculate the percentage of public high school graduates enrolled in the program. I use this method instead of taking the number of students that indicated that they attended public high school and dividing by the total number of students enrolled in the program because many of the students did not indicate whether they attended public or private high schools. Therefore, using the total number of students enrolled in the program instead of the sum of the students that indicated that they attended public or private high schools would lead to dramatic underestimations of the percentage of public high school graduates enrolled in the program, especially in 2010 to 2012.

#### 4.3 INDEPENDENT VARIABLE

The independent variable utilized for this study is:

*Percentage of students FIES.* I derive this variable first by calculating the total number of currently enrolled students that have FIES loans in each program. This number of currently enrolled students with FIES loans in a program is then divided by total the number of currently enrolled students that same program. This variable allows us to measure the relative influence of the FIES program on the student body of any given program. *Percentage of students FIES* is the only independent variable used to test my hypotheses.

#### 4.4 CONTROL VARIABLES

I use the following control variables to help increase the accuracy of my model:

*Percentage of students PROUNI (partial).* I derive this variable first by calculating the total number of currently enrolled students that have partial PROUNI scholarships in each program. The number of currently enrolled students with partial PROUNI scholarships in a program is then divided by total the number of students currently enrolled in that same program.

*Percentage of students PROUNI (full).* I derive this variable following the same steps used to derive the percentage of partial PROUNI students.

*Percentage of students other Financial Aid.* The first step to deriving this variable is to add up the number of currently enrolled students in each program that receive any kind of financial aid, either as a loan or a scholarship. The Censo de Educação Superior has a specific variable for whether or not the student receives any kind of financial aid, so this first step is similar to the first step of the variables derived above. I then take the total number of students with any kind of financial aid and subtract the total number of students with FIES loans, with partial PROUNI scholarships and with full PROUNI scholarships, being careful not to double-subtract the students have both FIES loans and partial PROUNI scholarships. This leaves me with a total number of students that have other kinds of financial aid, by program, and I calculate the percentage by dividing by the total number of students currently enrolled in the same program.

*Municipality GDP per capita.* This variable represents the GDP per capita of the municipality in which the higher education program is situated. I include the municipality's GDP per capita as a control variable because the municipality's level of wealth might affect a number of the other variables of interest. Municipal GDP per capita might be correlated to the number of students who can afford to enroll in higher education programs, the number of students that need some form of financial aid for higher education and the number of students who could afford a private high school education, for example. This data is made publicly available by SEADE, but only up to year 2013. Since the municipality GDP per capita does not change much from one year to another, I use the 2013 values for 2014 as well.

*Municipality total GDP.* Much like the previous variable, the total GDP of the municipality in which the higher education program is situated might affect the variables of interest related to socioeconomic status, since the municipality's total GDP is a measure of wealth. Different from the GDP per capita, however, the municipality's total GDP is also related to the population of the municipality, as the more people a municipality has the higher its GDP will tend to be. This variable helps control for differences between more and less urban municipalities, for example. More urban municipalities will offer more school and program choices as compared to less urban municipalities, so it is important to control for these differences. This data is made publicly available by SEADE, but only up to year 2013. Since the municipality total



GDP does not change much from one year to another, I use the 2013 values for 2014 as well.

*Total number of students at HEI.* The total number of students at a higher education institution in a given year is available in the Instituto de Educação Superior dataset of the Censo de Educação Superior. I incorporate this variable into my dataset to have a control measure for the size of the institution. Larger institutions may have characteristics that differentiate from smaller institutions. They may attempt to enroll more students in their programs, be more likely to encourage students to pursue FIES, PROUNI or other financial aid so that they have the financial conditions to enroll in their programs, or be less selective and therefore enroll more students from low-quality high schools. For these reasons, I include the total number of students at the HEI as a control.

*Number of students enrolled in the program.* This dependent variable of the “profit” hypothesis is included as a control variable in the “impact hypothesis”. Programs with a low number of students may be more selective or rigorous than programs with a high number of students, and this may impact the type of student that can enroll initially or stay enrolled. The size of the program may influence other dynamics similar to what was described in the variable above about the size of the institution.

*Year.* I create a dummy variable for each year. 2010 is year 1, 2011 is year 2, and so forth. Each of the dummy variables is initially set to zero, but changed to the value of one for the year in which the program is observed.

*Program.* Among the programs that I include in the study, all of which are categorized under “Commerce and Administration”, there are seven distinct, more specific program subcategories: general commerce and administration; wholesale and retail sales; marketing and publicity; finances, banking and insurance; accounting and taxes; management and administration; and secretary and office work. I create a dummy variable for each of these courses, initially all of which are set to zero, and then set the value equal to one for the appropriate program subcategory.

#### 4.5 DESCRIPTIVE ANALYSIS

The tables and figures that follow provide a general description of the sample utilized in this study and a more specific look into the variables of interest. Table 1 shows that my database includes a total of 4,298 observations of business-related programs at for-profit HEIs in the state of São Paulo. As I use five years of data, I observe many of these programs up to five times, once in each year. Not all observations include data on every variable of interest. More specifically, a number of programs are missing information about the percentage of students who graduated from public high schools. For these programs, none of the students informed whether they attended public or private high schools, and so I could not estimate a percentage.

**TABLE 1**  
**Descriptive Statistics of Variables Utilized in the Study**

Variables	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
# Students enrolled	4,298	212.9	256.7	5	2739
% Students Public High School	3,246	.849	.245	0	1
% Students FIES	4,298	.075	.166	0	1
% Students PROUNI (partial)	4,298	.028	.064	0	.653
% Students PROUNI (full)	4,298	.053	.063	0	.944
% Students other Financial Aid	4,298	.146	.273	0	1
Municipality GDP per Capita	4,298	42227	18171	6267.1	179471
Municipality Total GDP	4,298	1.63e+08	1.99e+08	185975	4.66e+08
Total # Students enrolled at HEI	4,298	9622.5	11926	2	53420

Table 2 provides the correlation coefficients between the variables utilized in this study. The strongest correlation is between the Municipality's Total GDP and the Total Number of Students Enrolled at the Higher Education Institution, perhaps due to a relationship between the size of the municipality and size of the institution in terms of student population. The correlations between the independent variables and dependent variables, as well as between the independent variables and the control variables, are generally weak. While this suggests there may not be a strong link

between my independent and dependent variables, it also means that my regression results will not be skewed by multicollinearity, which is a positive signal.

**TABLE 2**  
**Correlation Matrix of Variables Utilized in the Study**

Variables	1	2	3	4	5	6	7	8	9
1. # Students enrolled	1.0								
2. % Students Public High School	-0.075	1.0							
3. % Students FIES	0.000	0.182	1.0						
4. % Students PROUNI (partial)	0.062	0.073	-0.080	1.0					
5. % Students PROUNI (full)	0.077	-0.002	0.038	0.097	1.0				
6. % Students other Financial Aid	-0.062	-0.016	-0.146	-0.034	0.015	1.0			
7. Municipality GDP per Capita	0.006	0.025	-0.013	-0.07	0.006	0.006	1.0		
8. Municipality Total GDP	-0.048	-0.024	-0.134	-0.025	-0.041	0.070	0.200	1.0	
9. Total # Students enrolled at HEI	0.143	-0.136	-0.074	-0.028	0.037	-0.114	0.146	0.476	1.0

Table 3 shows the evolution of total student enrollment, the total number of FIES loans and the percentage of students with FIES loans for the programs of the sample between 2010 and 2014. The total enrollment rose from 172,096 students to 189,566 students from 2010 to 2012. Following 2012, enrollment in these programs began to decline. There were 183,299 actively enrolled students in the sample in 2014. As for the FIES loans, the number consistently rose between 2010 and 2014. While the number of FIES loans in the sample did not even double between 2010 and 2011, it nearly quintupled between 2011 and 2012 as well as between 2012 and 2013. By 2014, more 35,269 students had FIES loans, which represents 19.24% of all the

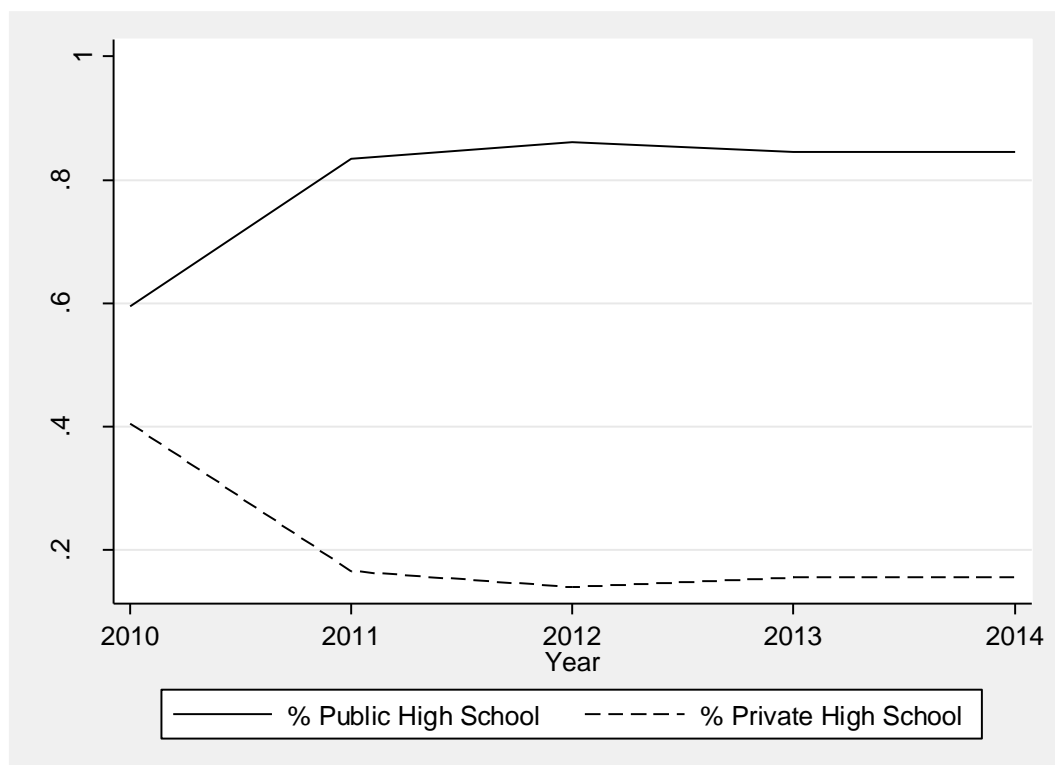
students enrolled. The major increase in the percentage of students in the sample, from a bit over 0% to nearly 20%, is impressive to say the least.

**TABLE 3**  
**Student Enrollment and FIES Loans: 2010-2014**

Year	2010	2011	2012	2013	2014
Total # of Students Enrolled	172,096	183,482	189,566	186,589	183,299
Total # of FIES Loans	636	1,210	5,676	25,221	35,269
% Students with FIES	0.37%	0.66%	2.99%	13.52%	19.24%

Figure 4 reveals that, on average, public high school graduates dominate the student bodies of for-profit business colleges in the state of São Paulo. Well above 80% of the students that provided this information between 2011 and 2014 came from the public high school system.

**FIGURE 4**  
**Percentage Public and Private High School Graduates: 2010-2014**



Although it appears that in 2010 roughly 60% of the students attended public high schools and 40% attended private high schools, in reality this information is likely misleading. Of the 172,096 students enrolled in my sample's programs in 2010, only 35,729, less than 20%, indicated whether they studied at a public or a private high school, which helps explain why the graphic changes significantly between 2010 and 2011.

**FIGURE 5**  
**Students with FIES Loans: 2010-2014**

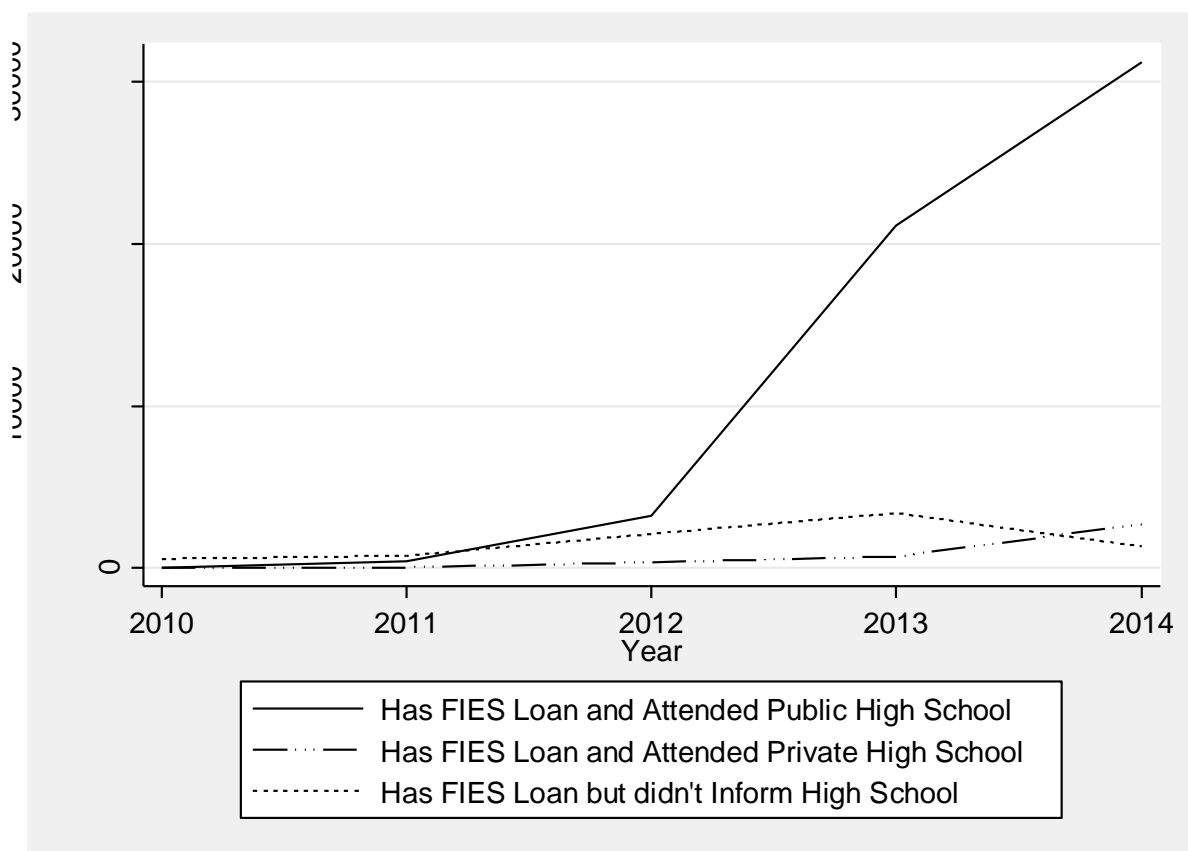


Figure 5 provides a more nuanced look into the dramatic increase in FIES loans shown in Table 3. The figure shows that students in my sample that attended public high schools were much more likely to benefit from FIES loans post-2012 than those that attended private high schools. By this measure, FIES seems to have helped lower-resource students gain access to for-profit business colleges in São Paulo more so than higher-resource students. On the surface, this fact debunks part of the logic that led me to predict a null effect for my “impact” hypothesis, specifically, that FIES may

not have benefitted low-resources students more so than high-resource students since the program was available to students from diverse socioeconomic backgrounds.

## 5 RESULTS

### 5.1 REGRESSION MODELS

In order to have more robust evidence about the impact that FIES had on enrollment at for-profit business colleges in São Paulo state between 2010 and 2014, I ran multiple regressions for both the “profit” and the “impact” hypotheses using random effects and fixed effects models. I applied the Hausmann Test to each regression in order to compare the consistency of the random effects and fixed effects models case by case. In each of the tests, the fixed effects model proved to be consistent and the random effects model inconsistent. Potential issues related to heteroscedasticity were controlled using robust standard error estimates.

Table 4 shows the results of the “profit” hypothesis regressions, which contemplates whether the increase in the percentage of students with FIES loans in a given program gave rise to an increase in student enrollment. Model 1 only tests the effect of *% Students FIES* on *Number of Students Enrolled in the Program* and is considered weak ( $\text{Prob} > F = 0.3267$ ). Models 2 and 3, on the other hand, are considered to be strong ( $\text{Prob} > F = 0.0000$ ). Model 2 includes the variables *% Students PROUNI (partial)*, *% Students PROUNI (full)*, *% Students other Financial Aid*, *Municipality GDP per Capita*, *Municipality Total GDP* and *Total # of Students at HEI* as controls. Model 3 includes all the variables from model 2 and also controls for *Year* and *Program* fixed effects.

Both models 2 and 3 shows that of the four categories of financial aid included in this study, FIES was the only financial aid instrument that had a significant positive impact on the general number of students enrolled in a given program. The coefficients of model 2 and model 3 estimate that if the percentage of students with FIES loans in a given program increased from 0% to 100%, the enrollment in such program would increase, on average, in the range of 32 to 63 students. In more practical terms, a 20% increase in the percentage of students with FIES loans from 2010 to 2014, which is roughly the average found in my data, leads to an average increase between 6 and 13 students enrolled. Taking the rough mean program size of 210 students, a 20% increase in the percentage of students with FIES loans would lead to an average enrollment increase of 2.8-6.2%. While this is not a huge effect, the results confirm the “profit” hypothesis.

**TABLE 4**  
**Fixed Effects Regressions - Dependent Variable: Number of Students Enrolled in the Program**

Variables	Model 1	Model 2	Model 3
% Students FIES	14.603 [14.884]	32.497** [15.999]	63.143*** [16.122]
% Students PROUNI (partial)		54.016 [47.662]	24.770 [47.605]
% Students PROUNI (full)		-105.676** [37.987]	-67.354* [36.071]
% Students other Financial Aid		-34.880*** [8.099]	-30.874*** [7.810]
Municipality GDP per Capita		-0.002*** [0.000]	-0.002** [0.001]
Municipality Total GDP		-0.006 [0.000]	-0.000 [0.000]
Total # Students at HEI		0.006*** [0.001]	0.007*** [0.001]
Year Fixed Effects	No	No	Yes
Program Fixed Effects	No	No	Yes
Constant	211.799*** [1.119]	261.105*** [24.0730]	209.495*** [35.999]
F	0.96	19.11	17.60
Prob > F	0.3267	0.0000	0.0000
N	4,298	4,298	4,298
Number of Programs	1,145	1,145	1,145

*Notes*

Regression model results by college program. Robust standard errors in brackets  
 \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Table 5 shows the results of the “impact” hypothesis regressions. Models 1 and 2 are shown to be consistent (Prob > F = 0.001 and Prob > F < 0.000, respectively). Model 1 looks strictly at the impact of % *Students FIES* on the *Percentage of Public High School Graduates Enrolled in the Program*. Model 2 includes % *Students PROUNI (partial)*, % *Students PROUNI (full)*, % *Students other Financial Aid*, *Municipality GDP per Capita*, *Municipality Total GDP*, # *Students in Program* and *Total # of Students at HEI* as control variables. These first two models estimate that an increase in the percentage of students with FIES loans in a given program had a significant, positive effect on the percentage of students in the program that graduate from public high schools.



**TABLE 5**  
**Fixed Effects Regressions - Dependent Variable: Percentage of Public High School Graduates Enrolled in the Program**

Variables	Model 1	Model 2	Model 3
% Students FIES	0.055*** [0.017]	0.093*** [0.030]	0.019 [0.027]
% Students PROUNI (partial)		0.553*** [0.142]	0.531*** [0.147]
% Students PROUNI (full)		-0.171** [0.060]	-0.194** [0.078]
% Students other Financial Aid		0.103*** [0.029]	0.105*** [0.029]
Municipality GDP per Capita		0.000*** [0.000]	0.000*** [0.000]
Municipality Total GDP		-0.000 [0.000]	-0.000*** [0.000]
# Students in Program		-0.000*** [0.000]	-0.000** [0.000]
Total # Students at HEI		-0.000*** [0.000]	-0.000*** [0.000]
Year Fixed Effects	No	No	Yes
Program Fixed Effects	No	No	Yes
Constant	0.844*** [0.002]	0.759*** [0.095]	1.061*** [0.089]
F	10.42	-	-
Prob > F	0.001	-	-
N	3,246	3,246	3,246
Number of Programs	1,056	1,056	1,056

*Notes*

Regression model results by college program. Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10

The impacts are quite small, though; for each 1 percentage point increase of the variable *% Students FIES*, the *Percentage of Public High School Graduates Enrolled in the Program* increases on average between 0.055 and 0.093 percentage points. In other words, if the *% Students FIES* increased 20%, the *Percentage of Public High School Graduates Enrolled in the Program* would increase between 1.1% and 1.86% on average. The effect size of *% Students other Financial Aid* on the dependent variable is comparable to the effect size *% Students FIES*, while the *% Students*

*PROUNI (partial)* seems to be approximately 5 times more effective at increasing the *Percentage of Public High School Graduates Enrolled in the Program*. Curiously, *% Students PROUNI (full)* had a statistically significant negative effect. When I controlled for *Year* and *Program* fixed effects, as I do in model 3, my independent variable of interest loses its significance, suggesting that FIES might not have had a significant impact on the relative ease of access to for-profit business colleges in São Paulo for students who attended public high schools versus students who attended private high schools.

To further investigate the “impact” hypothesis, I decided to construct a more robust set of regression models that consider only the programs in which at least 50% of the students indicated whether they studied in public or private high schools. This choice was based on the premise that if more than half of the students didn’t provide this data, my estimation for the percentage of students that attended public high schools and private high schools could be largely inaccurate.

Table 6 shows the results of this more selective and robust regression model. Apart from changes in the sample size, the models are identical to those of table 5. Model 1 looks strictly at the impact of *% Students FIES* on the *Percentage of Public High School Graduates Enrolled in the Program*. Model 2 includes the control variables *% Students PROUNI (partial)*, *% Students PROUNI (full)*, *% Students other Financial Aid*, *Municipality GDP per Capita*, *Municipality Total GDP*, *# Students in Program* and *Total # of Students at HEI*. Model 3 considers the same variables as model 2, but also controls for *Year* and *Program* fixed effects.

The results from Table 6 show that when considering only the impact of *% Students FIES* on the *Percentage of Public High School Graduates Enrolled in the Program*, there is a significant positive effect, but when I include the control variables, *% Students FIES* loses its significance. In other words, the more robust models 2 and 3 presented in Table 7 suggest that the percentage of students with FIES loans in a given program does not have a significant effect on the percentage of students in that same program that attended public high schools. Therefore, I also confirm the “impact” hypothesis.

**TABLE 6**  
**Robust Fixed Effects Regressions - Dependent Variable: Percentage of Public High School Graduates Enrolled in the Program**

Variables	Model 1	Model 2	Model 3
% Students FIES	0.078*** [0.021]	0.035 [0.027]	-0.008 [0.026]
% Students PROUNI (partial)		0.383*** [0.122]	0.336*** [0.119]
% Students PROUNI (full)		-0.179*** [0.068]	-0.135** [0.067]
% Students other Financial Aid		0.023 [0.017]	0.018 [0.016]
Municipality GDP per Capita		0.000*** [0.000]	0.000** [0.000]
Municipality Total GDP		-0.000*** [0.000]	-0.000*** [0.000]
# Students in Program		-0.000*** [0.000]	-0.000*** [0.000]
Total # Students at HEI		0.000 [0.000]	0.000 [0.000]
Year Fixed Effects	No	No	Yes
Program Fixed Effects	No	No	Yes
Constant	0.842*** [0.002]	0.562*** [0.082]	0.892*** [0.123]
F	13.21	-	-
Prob > F	0.0003	-	-
N	2,533	2,533	2,533
Number of Programs	996	996	996

*Notes*

Regression model results by college program. Robust standard errors in brackets

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

## 5.2 DISCUSSION OF RESULTS

The evidence from the data analyzed for this study supports my first hypothesis that FIES explains a significant increase in overall enrollment rates at for-profit higher education institutions (HEIs) between 2010 and 2014, called the “profit” hypothesis. The data also support my second hypothesis that FIES did not cause a significant increase nor a significant decrease in the percentage of students who graduated from public high schools attending for-profit HEIs in the same period, called the “impact”

hypothesis, despite the fact that FIES disproportionately benefitted public high school graduates in 2013 and 2014.

In terms of general student enrollment in the programs of my sample, it is interesting to note that FIES was the only financial aid category that had a significant positive effect. The percentage of students with full PROUNI scholarships or other forms of financial assistance actually had significant negative effects on student enrollment.

In terms of the percentage of students that graduated from public high schools, full PROUNI scholarships continued to have a significant negative effect, while partial PROUNI scholarships had a significant positive effect that was much stronger than that of FIES. These results are surprising, since both full and partial PROUNI scholarships are specifically destined for low-income students, who presumably attended public high schools.

Given that Figure 5 shows that the overwhelming majority of FIES beneficiaries attended public high schools in 2013 and 2014, it is curious that the percentage of FIES students in a given program would positively influence the number of students enrolled in that program but not the percentage of students who attended public high schools. It is possible that the data from 2010 through 2012, when the gap between public high school and private high school graduates with FIES loans was much smaller, minimized the effects of FIES on this outcome variable. This result may suggest that programs that experienced a rise in the number of students with FIES loans also experienced a rise the number of students that attended private high schools for reasons unaccounted for by my models. Though the regression models supported hypothesis 2, that FIES would have no significant impact on the percentage of public high school graduates enrolled in programs in my sample, the mechanisms behind this outcome are unclear.

## 6 CONCLUSIONS

### 6.1 IMPLICATIONS FOR THEORY

This study is inspired by the Hart, Shleifer and Vishny (1997) framework in which private provision of public services tends to reduce costs in detriment to non-contractible quality. Non-contractible quality is conceived of both in terms of the service's impact on the direct beneficiaries as well as on the government's social agenda. Adapting this framework to the context of higher education in Brazil, one would expect that for-profit HEIs would manage to reduce per-student costs, but would leave much to be desired in relation to quality of instruction and contributions to social equity. The fact that the private sector was overwhelmingly responsible for increasing college enrollment rates beginning in the mid-1990's supports the cost-reduction prediction. Since the grand majority of high school graduates in Brazil studied at public high schools, it is not very surprising that the grand majority of students at the for-profit HEIs in my sample come from the public school system. This fact suggests, however, that for-profit HEIs contribute in some capacity to the government's objective of increasing higher education opportunities for underprivileged populations.

This dissertation empirically explores the extent to which government programs might affect the "profit versus impact" tradeoff, which is a loose adaptation of the traditional cost versus quality tradeoff that private providers of public services face (HART; SHLEIFER; VISHNY, 1997). Since the government is held accountable for distributional and social equity objectives (WILSON, 1989) and education serves as a tool to level the playing field between individuals with different socioeconomic backgrounds (LEVIN, 1987), the government should closely monitor the social consequences of its education system. Considering the perpetuation of social inequality is one of the higher education market failures in Brazil (CASTRO, 2005), the Brazilian government should intervene to address this issue. In theory, a federal student loans program like FIES could help diminish the negative impacts that cost-reduction behaviors have on non-contractible quality, since for-profit HEIs could enroll low-resource students without assuming financial risk. My results for business-related programs in the state of São Paulo suggest that FIES had a positive impact on company profits, as measured by an increase in general student enrollment, and no actual social impact, as measured by the percentage of college students that

graduated from public high schools. While I do believe that government intervention can help curb the downsides of private provision, in this case, it failed to do so.

## 6.2 IMPLICATIONS FOR PRACTICE

Although Brazil boasts one of the world's largest economies, the qualifications and productivity of its workforce are falling behind relative many developing nations. In 2015, Brazil ranked 78 out of 124 countries in terms of how it develops and deploys its human capital, falling from the 57<sup>th</sup> position in 2013. Much of Brazil's low performance on these measures can be attributed to the poor quality of its education systems: the same report places Brazil near the bottom of the list in terms of primary school quality (109<sup>th</sup> place) and quality of education for 15-24 year olds (110<sup>th</sup> place) (World Economic Forum Human Capital Index).

If the Brazilian government is truly concerned about decreasing social and economic inequalities by providing better educational opportunities to traditionally underprivileged segments of the population, then it must design and implement programs such as FIES in a way that truly benefits such segments. It must also carefully monitor and evaluate its policies and programs in order to understand the costs and benefits its efforts produce. As these efforts are paid for with public resources, a greater degree of transparency is recommended.

In 2015, a number of changes were made to the FIES program. For example, FIES loans were restricted to student's whose per capita income was less than or equal two 2.5 minimum wage salaries and only students who scored above 450 on the Enem exam, which is a general exam that all high schools students take, would be eligible for loans. These changes help ensure that only low-resources students who are sufficiently prepared for college programs will be granted FIES loans, and therefore seem to address some of the issues highlighted by this study. This more targeted use of public resources should help increase FIES's "impact" effect and decrease the "profit" effect, therefore increasing social equity.

Nonetheless, while Brazil's efforts to democratize higher education opportunities are commendable, it is necessary to contextualize higher education within Brazil's broader education system. By the time young Brazilians look to enroll in a higher

education program, their options are already heavily influenced by their earlier educational experiences. Students from lower-class families tend to depend on public schools for their basic education, and if the education these schools provide does not afford such students the opportunity to compete with higher-resource students for seats in the most desirable colleges, policies at the higher education level will be simply treating the symptoms of a system that continues to produce inequality. From this perspective, it might be more effective for the Brazilian government to aim to democratize access to solid basic education opportunities, which will in turn diminish the access inequities that exist at the higher education levels. A more qualified mass of high school graduates should also naturally pressure private HEIs to improve the quality of their programs.

### 6.3 LIMITATIONS

This master's dissertation is a first attempt to provide objective information on an important federal program for higher education in Brazil. There are a number of limitations in the study's data, scope and methodology. Firstly, my data on the percentage of students per program who graduated from public high schools is problematic. In 2010, over 80% of the students in my sample omitted this information. While the response rate progressively improves over the years, this is a key variable for my study and the data limits the reliability of the results.

Second, it is true that students who attend public high schools generally come from lower-income families and students who attend private high schools generally come from upper-income families, so attending public high school is a reasonable proxy for being underprivileged. That said, there are certainly exceptions, and this study does not attempt to tease out those cases. Additionally, there are always issues with self-reported data. Data reported by the student or the program may not always be accurate because the respondent may be enticed to answer in a way that they believe the survey administrators will judge as "correct" versus what is necessarily "true".

This study was limited to college programs related to business ("commerce and administration"), and it is possible that the programs and students in my sample have

certain characteristics that led to biased results. In other words, the sample does not have external validity and it would not be fair to assess the FIES program looking solely at one specific subpopulation of its beneficiaries. It is entirely possible that FIES had a stronger effect on the percentage of public high school graduates in engineering or journalism programs, for example. Related to this limitation is the limitation of geography. São Paulo state is among the most developed of Brazilian states, and it is possible that FIES had greater impacts in other parts of Brazil, such as the northeast or northern regions of the country.

Finally, this study does not provide strong direct evidence for or against the theoretical model on which it was inspired, namely Hart, Shleifer and Vishny's (1997) model of the tradeoffs between public and private service provision in a context of incomplete contracts. More so than testing Hart et al's theory, this study tests the effectiveness of a government effort to correct for one of the shortcomings of private provision: the difficulty of working towards social objectives through market mechanisms. I transpose a loose interpretation of Hart et al's cost versus quality tradeoff to Brazil's higher education context and draw a parallel with "profit versus impact". However, in principle, government-backed student loans could help for-profit HEIs avoid having to make a profit versus impact tradeoff, since increased enrollment of lower-resource students made possible by government financing would both positively affect these institutions' profit and impact.

## 6.4 SUGGESTIONS FOR FUTURE RESEARCH

As Hart et al (1997) affirm, the most important element to take into account when comparing public and private service provision is the effect that private sector cost reductions have on the non-contractible quality of the service provision. Besides looking at non-contractible quality through the social impact outcomes of for-profit HEIs, scholars might increase our understanding of non-contractible quality in the higher education setting by assessing the return on the human capital investment that a student makes by attending a college program, via gains in later labor market productivity or earnings for example (BECKER, 1964). Do the HEIs where such students most commonly enroll truly transform their life prospects? Do these students leave college with knowledge and skills that allow them to recuperate the direct and



indirect costs and associated with higher education, or are they forever burdened by their college debt? Outcomes such as health, consumption efficiency or access to information (HAVEMAN; WOLFE, 1984), and self-reported satisfaction, as Goldin (2012) considers for students of for-profit HEIs in the United States, could also be relevant to judging the quality of for-profit HEIs in Brazil.

While accurately evaluating the quality of higher education services is a tricky business, the Brazilian government already has an instrument for these purposes, called the *Conceito Preliminar do Curso*. The CPC is an index that takes into account test scores that a selection of students take as they enter a higher education program and as they conclude the same program (the ENADE test), as well as information about the qualifications of program's teachers and the institutions infrastructure. Additionally, in recent years the *Censo de Educação Superior* began to incorporate more financial information about higher education institutions, such as their income, income from government transfers, expenditures on professors, investments, etc. Researchers can utilize this information in tandem with the CPC to assess the applicability of Hart et al's (1997) model to higher education in Brazil.

With stronger empirical information about the quality of higher education provided by the private and public sectors in Brazil, researchers would be better situated to study the effects of certain public policies that are designed to address higher education market failures. Impact evaluations would contribute to the organizational literature on the roles of the public and private sectors in terms of higher education service provision. Such studies would also help governments understand the costs and benefits of certain policies and programs, and consequently help them to allocate society's limited resources in a manner that maximizes their social value.

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