

Teacher employment contracts and student performance

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ABSTRACT

This article examines the association between teachers' work conditions and student's performance as measured by large-scale tests in the São Paulo State school network. Based on official documents and on a not-yet-explored dataset provided by the State Education bureau, first we address how teachers' employment contracts signal work conditions. Second, we attempt to list the more prevalent types of contracts in the different regional boards of education and to show the link between contract types and student performance, thus revealing the segmented structure of the São Paulo State school network. Finally, theoretical and policy-related implications of these findings are discussed.

KEYWORDS

basic education; teachers; work conditions; employment contracts; student performance.

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CONTRATOS DE TRABALHO DE PROFESSORES E RESULTADOS ESCOLARES

RESUMO

Este artigo examina a relação entre condições de trabalho de professores e resultados escolares na rede estadual de ensino de São Paulo. Apoiando-se em documentos oficiais e dados ainda não explorados fornecidos pela Secretaria de Educação Estadual, o artigo indica, primeiro, o vínculo existente entre tipo de contrato e condições de trabalho. Em seguida, identifica o tipo de contrato mais prevalente em cada Diretoria Regional de Ensino (DRE) da rede estadual e estabelece a relação entre os tipos de contrato e o desempenho dos alunos, revelando, assim, a estrutura clivada dessa rede de ensino. Ao final, discutem-se as implicações teóricas e em termos de políticas públicas desses achados.

PALAVRAS-CHAVE

educação básica; professores; condições de trabalho; contrato de trabalho; resultados escolares.

ELACIONES ENTRE CONTRATOS DE TRABAJO DE DOCENTES DE EDUCACION BASICA Y RESULTADOS ESCOLARES

RESUMEN

Este artículo examina la relación entre las condiciones de trabajo de los docentes de educación básica y los resultados escolares en la red de enseñanza del Estado de San Pablo. A partir de documentos y nuevos datos oficiales, el artículo primero muestra el vínculo existente entre el tipo de contrato y las condiciones de trabajo. Luego, identifica el tipo de contrato más relevante en cada Dirección Regional de Enseñanza de esa red y establece la relación entre los tipos de contrato y el desempeño de los alumnos, mostrando así, la estructura clivada de esa red de enseñanza. Finalmente, se discuten las implicancias teóricas de esos resultados y su relevancia en materia de políticas públicas.

PALABRAS CLAVE

educación básica; docentes; condiciones de trabajo; contrato de trabajo; resultados escolares.

INTRODUCTION

The studies that examine Brazilian educational inequality have been exploring the role of schools and teachers in students' academic performance for quite some time. The correlation between performance and school characteristics has been identified in studies on school segregation (Costa *et al.*, 2013; Costa and Bartholo, 2014; Ernica and Batista, 2012), on "school effect" (Alves and Soares, 2007), or even on the school trajectories of students from different social groups (Nogueira, 2013; Almeida, 2004; Zago, 2000; Viana, 2012; Portes, 2000).

In these studies, school characteristics are taken as relevant elements to describe the educational stratification in our society and to examine how it affects students' academic performance and social destinies. In spite of that, the teacher is rarely taken as a subject of analysis *per se*, and even less through approaches that entail a more precise examination of whether and how their social and professional characteristics and working conditions impact students' academic results.

Simultaneously, studies exploring Brazilian teachers' salaries and working conditions *per se* abound. These studies show that teachers' earnings vary depending on the municipality, the state and the region of the country they work (Camargo *et al.*, 2008). They also show that teachers' earnings vary through time, sometimes on a descending curve (Camargo *et al.*, 2017; Nascimento *et al.*, 2014), and are usually inferior to those received by other professionals with the same level of training (Alves and Pinto, 2011). These studies also show that dissatisfaction with salary is one of the reasons why a significant portion of them leave the profession (Lapo and Bueno, 2003). In addition to that, the literature shows a recent increase in the intensification of teachers' work and the precariousness of job contracts (Oliveira *et al.*, 2002; Oliveira, 2016).

The fact that the relation between teachers' working conditions and students' academic performance is not directly approached by the literature often seem to indicate that it is taken as obvious in this field of studies, *i.e.*, as a phenomenon that can be explained by itself, with no need for further elaboration. Nonetheless, analyses that allow for a more precise questioning about the possible connection between teachers' working conditions and students' academic results are needed so that we can document its existence and understand what makes it possible. Such analyses are also important because they permit the evaluation of policies that aim to change students' academic performance.

This article intends to contribute to fill this gap through an analysis that relates students' academic results in the state-sponsored schools of São Paulo and the teachers' employment contracts. The contracts are considered here as indicators of some aspects of teachers' working conditions and earnings. The types of contracts the state administration uses to hire its teachers are associated with:

- more or less stability in job and workplace;
- more or less autonomy to decide in which school they will work when hired;

- more or less stability in job and access to a teacher career;
- more or less access to work positions that correspond to the teacher's formation;
- more or less access to the social protection network available for state workers, such as medical leave, use of the state hospitals and medical coverage, and special retirement conditions.

It should be noted, however, that the contracts are not very precise indicators of teacher training and remuneration. They are as well poor indicators of some dimensions of the working conditions more closely related to the school context, including the number of students per class, access (or not) to pedagogical support, or even the school's social environment (among other elements, the social vulnerability of the community serviced by the school). In spite of that, the results here presented support the pertinence, the productivity, and the potential of considering teachers' contracts as indicators of teachers' working conditions to better understand how academic results are produced in the state school system of São Paulo and other educational systems.

Before diving into this discussion, though, the article describes, in its first part, the job market in which navigate the teachers hired by the state of São Paulo, in order to identify the array of contracts offered to them. The objective is to show the association between each type of contract and specific teachers' working conditions. Next, the article presents the results of an analysis based on official data, *i.e.*, the significant differentiation between São Paulo schools and the positive association between types of contract and students' academic performance. In the final remarks, we depict some of the theoretical implications of these findings when it comes to public policies.

A DIFFERENTIATED AND HIERARCHIZED JOB MARKET

The biggest job market for K12 teachers in Brazil is the state of São Paulo. In 2015, it kept 444,196 "teaching positions", each of those "corresponding to a job contract with a determined school" (INEP, 2016a). The second state in number of teaching positions, Minas Gerais, added up to 227,482 in the same year, and Rio de Janeiro, third on the list, had 160,264 (INEP, 2016a, Table 2.1). Thus, the state of São Paulo by itself concentrated, in 2015, 50.88% of all teaching positions in the Southeast region of the country and 20.40% of the 2,187,154 teaching positions in Brazil. These numbers are compatible with the population distribution, as the state of São Paulo concentrated, in 2015, around 51.77% of the Southeast population and 21.71% of Brazilian population (IBGE, 2015).

In the same year, about two thirds of the K12 teaching positions (67.35%) in the state of São Paulo were distributed among private schools and those ones maintained by municipalities, while 32.42% were in schools ran by different state institutions — the Education Secretary, the state Secretary for Economic Development, Science, Technology, and Innovation, the São Paulo state University "Júlio

de Mesquita Filho”, the Campinas state University, and the São Paulo University (INEP, 2016a, Tabela 2.2).

Figure 1 shows the different K12 education networks present in the state of São Paulo, helping to visualize the intricacies described.

Besides the differences regarding their position in the administrative structure, state schools form two different networks each with different ways of admitting students, as well as different teachers’ job contracts that correspond to different salaries, and career opportunities. They may also implement different curricula.

Schools under the control of the state Secretary for Economic Development, Science, Technology, and Innovation and the state universities have the prerogatives to regulate the admission of their students by formal exams, to offer better salaries for the teachers, and, in high school, to exhibit a curriculum that merges vocational training and generalist education. They belong to a so-called “technical-schools network”. Differently, the schools under the control of the Education Secretary are obliged by law to accept every enrollment demanded by families, offer lower salaries, and only present the generalist curriculum. The network to which they belong is known as “the state-schools network”.

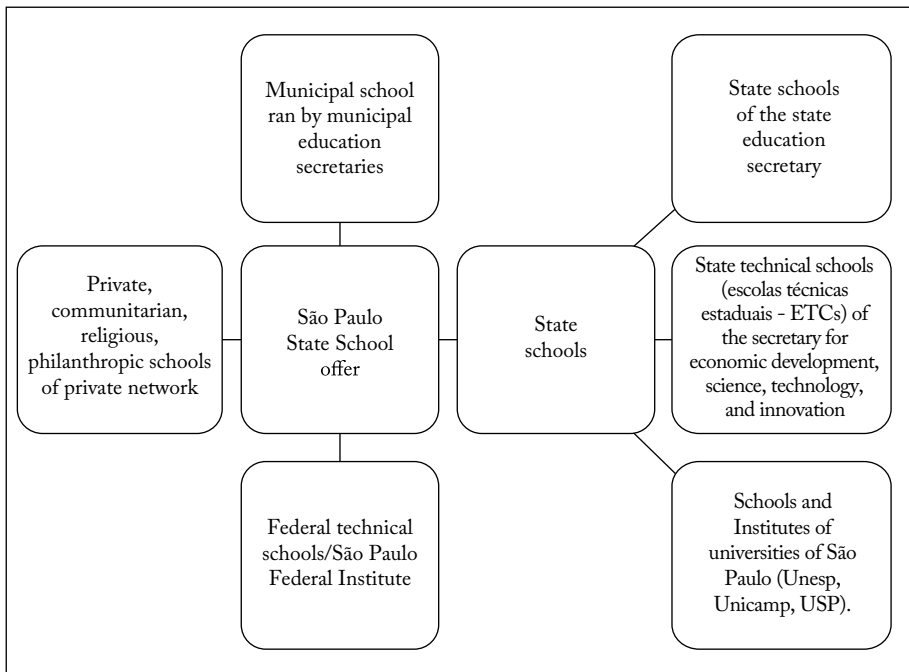


Figure 1 – School system administrative differentiation in the state of São Paulo.

Source: created by authors.

Unesp: Universidade Estadual Paulista “Júlio de Mesquita Filho”; Unicamp: Universidade Estadual de Campinas; USP: Universidade de São Paulo.

The first network receives just around 1.06% of the state schools enrollments in K12 education (São Paulo, 2015a), while the second one receives 98.93%. In the remaining parts of this article, we will refer only to the schools that belong to the second network, *i.e.*, to the “state schools”.

CONTRACTS AND WORK CONDITIONS IN THE STATE SYSTEM OF SÃO PAULO

As mentioned before, teachers working for the state of São Paulo have signed different types of contracts and, in some cases, have not signed any contract at all, thus lacking a recognized employment relationship with the state.

On November 2015, 57.89% of teachers' active in the schools had been admitted through public examinations (São Paulo, 2015c), that lead to the best job contracts. Teachers hired in such a way are known by the state as “effective teachers”, a title that refers only to their contract situation and has nothing to do with their performance in the classroom. Through this contract, the teacher is hired to teach a specific subject matter, for which they have received training at the higher education level. If they are bound to elementary school, they are hired as *professor da educação básica I* (PEB I — basic education teacher I). If bound to middle school or high school, they are hired to act in a particular area of knowledge as *professor da educação básica II* (PEB II — basic education teacher II).

Effective teachers are granted tenure and, once hired, start a teaching career that allow for periodic salary increases, according to the number of years of work and to their engagement in on-the-job training. In addition to that, effective teachers are entitled to better health insurance and retirement plan. Regarding earnings, a study by Afonso, Barbosa, and Pessôa (2011) showed that, in 2007, the average salary of effective teachers hired by public examination in Brazil was 50% higher than the average earned by teachers hired under other types of contracts (São Paulo, 1997, 2004).

The other job contracts active in November 2015 did not require public examination to be celebrated. They are, on the secretary jargon, the “non-effective teachers” and are subdivided in three different types. The first entitles the teacher with the same rights and benefits of the “effective teachers”. This type of contract was extinguished in 2007, but those active at that time kept their prerogatives. In the jargon of the Education Secretary, those teachers are called “stable teachers”, or “holders of function-activity category F”. In this study, we will refer to them as *stable substitute contract*.

The second type is when the teacher works under temporary contracts for a definite amount of time (*contratos temporários por tempo determinado* — CTDs) (São Paulo, 2009). In this category, they are hired to cover for what is supposed to be a temporary lack of effective teachers, such as when it is not possible to hire teachers through public examination, or in the case of leaves of absence of effective teachers that last over 15 days. So, as not to characterize a legal work relationship with the state, the teachers hired under this type of contract are obliged to have an

interval of time between one contract and another¹. In the Secretary jargon, those teachers are called “holders of function–activity category O”. In this study, we will cite them as *contract substitute for a definite amount of time*.

The third type is when the teacher covers short absences of effective or substitute teachers, *i.e.*, less than 15 days (São Paulo, 1986). They are called “eventual teachers”. It is very common that eventual teachers will substitute, in the same schools, classes of different teachers, and, consequently, of different subjects. Their earnings are relative to the number of hours/classes given in that month. As they are recruited to substitute unpredicted absences, their working conditions are quite precarious, as they cannot plan their classes in advance neither foresee their daily, weekly, or even monthly earnings, even though the system allows them to have a considerable number of substitution opportunities². We will refer to this contract as *eventual*.

Among those types of job contracts, only those that require succeeding a public examination require specific training in the subject matter that will be taught, *i.e.*, a university-level teaching degree in one of the curriculum areas of the K12 education. This degree is not required in any other type of contract. For substitute contracts for a definite amount of time, the teacher must hold a college degree in any area. Teacher training is not required, and the college major may be in a completely different area from the one he or she is hired to teach. Finally, for an eventual substitution, it has been enough, in the past years, to show that one is currently enrolled in any higher education major (São Paulo, 2005, 2013). With no specific training required, the teacher bound to a school through contracts other than the “effective” one, can teach any class, in any subject matter, anytime that an “effective teacher” is not available³. That means that, contrariwise to what happens to their colleagues who were admitted after succeeding the public examinations, substitute teachers can give classes s/he has not received any training for.

The lack of training requirements for hiring teachers for temporary positions is not new. In 1989, the legislation authorized the admission of “college seniors pursuing majors related to the subjects that they intend to teach” (São Paulo, 1989). In December 1999, schools were allowed to hire substitute

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- 1 Related to that, it is worth highlighting that the legislation regarding the hiring of teachers for a limited time has gone through significant changes in the last decade. Initially, for each year worked the teacher should have an interval of the same duration for a new contract. Since 2015, this period of contract was extended to three years, with an interval of 180 days. For indigenous teachers, this period is of 30 days.
 - 2 Official data show, for instance, that in May 2015, when the contingent of teachers was of 223,126, the number of teachers absent for at least one day (for medical reasons, excused absence, justified or unjustified absences) was of 193,679 during that month, what corresponds to around 9,683 (4.33%) of absent teachers per day (São Paulo, 2017a).
 - 3 It is interesting to notice that there is only one exception to the rule, regarding the subject of Physical Education. According to the article 4 of the state Law no. 11.361/2003, this subject can only be taught by teachers who have obtained a teaching degree in Physical Education (São Paulo, 2003).

teachers that received no training whatsoever in the area they would teach (São Paulo, 1999).

At that time, 72.64% of all state teachers held temporary contracts (São Paulo, 2015c). Fifteen years later, in November 2015, even though there has been a strong decrease in the number of temporary contracts, the proportion was still of 42.10%. In this group, more than one quarter (17.83%) taught a different subject matter from the one they had received their training or were still in college receiving the appropriate training (São Paulo, 2015c).

Not by chance, this was also the period in which it was noticed increase in the number of studies that established a relation between public school education and the (bad) teacher formation (Duarte, 2010; Marin *et al.*, 2005). By focusing essentially in the individual teacher and not discussing concomitantly the work conditions that they faced, this literature ended up contributing, even if inadvertently and against their own intentions, to the dissemination of the idea that teacher training, or the lack thereof, was responsible for the poor academic performances, regularly registered in large scale standard tests promoted by the state and federal governments.

As the studies on teacher training, on one hand, and those that look into their working conditions, on the other, are performed by different authors, discussed in different spheres and published in various places, the broader institutional transformations that led to the relative disconnect between training and work has not been confronted to the students' academic results yet.

The lack of effective teachers in the state-school network is worsened even more by the long periods that go on without been offered examinations for hiring school principals. Since the 1970s, there were only six public examinations for school principals. The last one happened in 2007 (São Paulo, 2006). As a result, in November 2015, 46.00% of school principals were assigned to this position by administrative measure⁴ (São Paulo, 2015c).

The long intervals between the public examinations explains why such a large proportion of K12 teachers work under temporary and eventual contracts. As mentioned, part of these teachers has not received the training that allows them to teach in the grade level and/or in the subject matter they are teaching. Another part, however, is composed by trained teachers who have to work under temporary contracts while waiting for the public examinations. Contrary to what happen in other Brazilian states and municipalities, there is no legal provision that require the state to hire effective teachers when a certain level of need is reached (Município de São Paulo, 2007).

4 One has to consider that during this period, in which there were large intervals between the public examinations, many teachers left the classrooms, because they retired or exonerated. Between January 2000 and June 2015, for instance, there were 35,394 exonerations of teacher's positions (São Paulo, 2015b), an average of 2,360 teachers per year that left the service for this unique reason, 3,395 of them only in 2014.

EMPLOYMENT CONTRACTS, ACADEMIC PERFORMANCE, AND STUDENTS' SOCIAL CHARACTERISTICS

To analyze the relation between teachers' working conditions and students' academic performance, we considered the Regional Education Boards (Diretorias Regionais de Ensino — DREs) of the Education Secretary of the State of São Paulo as our unit of analysis⁵, and used a series of data that informed us about teacher' job contracts, students' results in the state and national assessments, and the conditions of life and schooling of this population.

Data on teachers' job contracts were obtained at the Human Resource Management Coordination of the Education Secretary of the State of São Paulo (Coordenadoria de Gestão de Recursos Humanos da Secretaria da Educação do Estado de São Paulo — CGRH/SEESP).

Information on students' performance was given by the Education Development Index of the State of São Paulo (Índice de Desenvolvimento da Educação de São Paulo — IDESP). Created in 2008, the IDESP reflects students' proficiency in Portuguese and Mathematics in the Evaluation of School Performance System of the State of São Paulo (Sistema de Avaliação de Rendimento Escolar do Estado de São Paulo — SARESP). Information about life conditions of the student population was inferred from the different data, as explained following.

These data were used to construct a variable that could indicate, in regards to each DRE:

1. teachers' working conditions;
2. students' performance;
3. conditions of life and schooling for the population in the area.

For analytical purposes, (i) and (ii) were considered as active variables and (iii) as extra variables.

VARIABLE 1: TEACHERS' WORKING CONDITIONS

To characterize the DRE in terms of teachers' working conditions, we used three teachers' indicators:

1. types of work contracts;
2. teacher training;
3. cumulation of teacher work contracts in the public service (state, federal, municipal).

5 Each DRE is responsible for managing a set of schools. These can attend the population of a single city or a group of cities. Cities with many inhabitants might have many DREs, as it is the case of São Paulo and Campinas. The most common scenario, however, is that each DRE is responsible for a group of schools distributed through different cities.

All the active employment contracts that were active in each DRE in November 2015 were taken into account. These contracts were divided into three categories: effective, stable, and temporary for a definite amount of time⁶.

Elementary school teachers working under substitute contracts for a determined amount of time were distinguished from the middle and high school teachers working under the same contracts, but without a teaching degree diploma (Ferreira *et al.*, 2009; Paiva, 2002).

The cumulation of employment contracts in the public service refers to teachers that accumulate two “effective” contracts. This cumulation is treated here as an indicator, even if imprecise, of “teaching effort”⁷. As the data is limited to the public service, only the teachers that had two contracts with the state, or a contract with the state and another with other institutions run by the state, the cities, or the federal government in November 2015, were identified. These data were informed by the CGRH of SEESP, therefore they are not publicly available.

VARIABLE 2: ACADEMIC RESULTS

To categorize the DRE in terms of the students’ results in assessments, the IDESP 2015 of three different grade levels (5th grade, 9th grade, and the senior year of high school) was used⁸. These data were informed by the Coordination of Information, Monitoring and Educational Evaluation of SEESP. They are not publicly available neither.

VARIABLE 3: CONDITIONS OF LIFE AND SCHOOLING OF THE POPULATION

Finally, each DRE was characterized in terms of life and schooling conditions of the population, based on official sociodemographic data and data on the schooling offer in the geographic area of each DRE, given by information on student enrollment in each school network (state, federal, municipal, private). The more differentiated is the schooling offer, the more socially segregated are the school networks.

6 Additionally, we also considered in the supplementary variables the principals’ employment contracts.

7 The term “teacher effort” is the label given to an indicator created by the Ministry of Education in 2014, that assembles a set of variables of the Basic Education Census that were considered pertinent (even if not directly) to define the “effort made by teachers in the profession” (INEP, 2014, p. 1). The variables are: “(1) number of schools he/she works; (2) number of work shifts; (3) number of students taught, and (4) number of levels taught” (INEP, 2014, p. 1). In this article, we will use the term “teacher effort” to indicate the cumulation of jobs in the public service by effective teachers. Therefore, it is not the same indicator.

8 As previously stated, the IDESP reflects performance of the students in proficiency exams in Portuguese and Mathematics in the SARESP, and the performance of the school in terms of student flow (São Paulo, 2017b).

Besides this, data on the participation of state schools in National High School Exam (Exame Nacional do Ensino Médio — ENEM) 2015 was considered here as an indicator of more or less prevalence of dispositions to a longer duration schooling, typical of less vulnerable social groups (INEP, 2016b). At last, to better categorize the districts and cities that compose each DRE, it is used information on the population size and the Municipal Human Development Index (Índice de Desenvolvimento Humano Municipal — IDHM), for income and education — published in the *Atlas do Desenvolvimento no Brasil*, of the United Nations Development Program (Programa das Nações Unidas para o Desenvolvimento — PNUD, 2013).

THE STATE-SCHOOL NETWORK AS A SPACE OF EDUCATIONAL ADVANTAGES AND DISADVANTAGES

These data were submitted to a principal component analysis (PCA)⁹. This method allows for the inductive exploration of information available on each DRE, so as to identify those that contribute more strongly to the differentiation of each of them in relation to the others.

The active variables were the following:

- the indicators of teachers' work conditions;
- students' academic results.

As supplementary variables:

- the sociodemographic conditions of the population;
- the employment contracts of the school principals.

Graph 1 presents the correlation between the aforementioned variable¹⁰. The continued black arrows indicate the active variables, while the dotted ones the supplementary variables.

In the graphic, the longer the arrow, the stronger the weight of the variable, and the shorter the arrow, the weaker its weight, as it is more equally distributed among all the objects analyzed (DREs), contributing less to its differentiation (Perosa, Lebaron e Leite, 2015). In addition, the closer one variable is to another, the more positive is the correlation between them; when they opposed one another, there is a negative correlation between them (Busca and Toutain, 2009).

9 The principal component analysis is fundamentally exploratory. It contributes to the construction of general hypothesis through data. Another benefit of this type of analysis is its ability to indicate the most relevant indicator to construct a relation, making it possible to put aside less important information — redundant or aleatory ones — not always easy to spot. For a deeper discussion, consult Rouanet (2006), Perosa and Costa (2015), López-Roldán and Fachelli (2015).

10 In the Annexes there is a table with the value of each axis of Graph 1 and the correlation between their coordinates and the analyzed variables.

to show that in certain places there is, at the same time, a higher concentration of substitute teachers and effective teachers that have two jobs in the public service — a strong indication of an “increase of individual workload” (Oliveira, 2006, p. 214).

Considering also the supplementary variables, it is shown (in the left quadrants of Graph 1) that the highest IDESP is positively correlated to:

- a higher participation of state schools in ENEM 2015;
- a higher concentration of cities with a population of maximum 50 thousand people.

The opposite situation takes place when there is a concentration of cities of more than 500 thousand people and a concentration of effective teachers with accumulated contracts with the state and other public networks.

Graph 2 represents the school space of the state of São Paulo. It can be seen as a mirror of Graph 1, showing now the 91 DREs, one in relation to the other, based on the analyzed variables. This theoretically built space cannot be confused with the state’s geographic space, as the distances among the DREs represented do not correspond to their geographic distances, but to the distances in terms of the variables that answer for the first (horizontal) and the second (vertical) axis.

The DRE distribution in this space indicates that the variation of students’ academic results is not random. On the contrary, it is closely related to the most frequent type of teachers’ (and principals’) employment contract in each DRE.

Two oppositions should be highlighted. The first opposes a set of DREs which are mostly located in the southeast region of the state, positioned in the lower-right quadrant of Graph 2 to DREs located mostly in the central and northeast regions of the state, in the upper-left quadrant. The first set are characterized by the highest volume of stable substitute contracts, temporary substitute contracts, and the cumulation of effective examined contracts in the state system. The second set has the highest number of effective contracts (without the cumulation of other contracts).

The second opposition contrasts the DREs located in the lower-left quadrant, mostly also located in the center and northeast regions of the state, that had the highest IDESP in 2015, and the DREs in the upper-right quadrant, mostly in the metropolitan region of São Paulo and the Baixada Santista, that have the lowest IDESP and the highest number of accumulations of examined contracts (in the state and other public systems).

The students’ enrollment distribution shows that in the DREs with the highest IDESP the enrollment in the elementary level is concentrated in the municipal network and the later years of elementary and high school in the state system, with a significant participation of selective public high schools. It suggests that the levels of differentiation in the local school offer are related to more or less satisfactory school experiences¹¹.

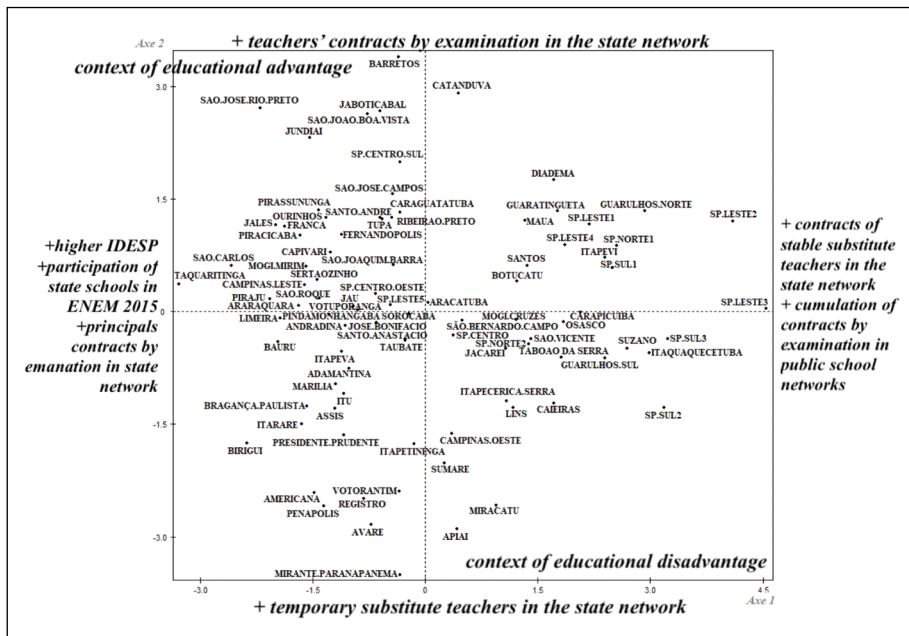
11 This hypothesis deserves the researchers’ attention and deeper empirical investigations — a project that is in our research horizon.

In counterposition, the regions with the highest IDHM, income and educational levels are the same ones with the highest presence of private schools in all levels of K12 education and the municipal system in the elementary and the middle school levels. Those DREs are concentrated in the metropolitan region of the city of São Paulo. This situation matches the results of the study done by State System for Data Analysis Foundation (Fundação Sistema Estadual de Análise de Dados — SEADE, 2014) which points out exactly the contrast seen in the metropolitan region of São Paulo: it has the highest levels of richness and life expectancy, compared to the other regions of the state, but its educational indicators are the worst among the 16 administrative regions of the state.

FINAL REMARKS

The discussion on the relation among teachers’ working conditions, including their earnings, and students’ academic results is a central aspect of the broader problem of inequality of school results and its consequences for social inequality. One of the difficulties faced by this discussion is the lower availability of data that can be used to analyze the issue in regard to a large number of cases. Our study aimed to offer a contribution for this discussion through the analysis of the relations between employment contracts and academic results using data still not largely available.

The results show that the good performance of students is strongly associated with the work conditions of teachers and principals, and also related to certain



Graph 2 – Representation of the social space of São Paulo state network.
Source: created by authors.

geographical regions of the state: those in which the DRE covers cities with less than 50 thousand people.

The differentiation among the DREs documented here and the identification of the principles that guide this differentiation are important elements to better understand how the inequality of educational opportunities are built throughout the various segments of the school system.

It is worth highlighting that only four out of the 28 DREs in the metropolitan region of São Paulo are among those with the best IDESP. They are also the DREs with the best teachers' and principals' employment contracts: Santo André, SP Centro-Oeste, SP Centro-Sul, and SP Leste 5¹².

The results show that the insufficient number of effective contracts, together with the current practices of hiring substitutes, seem to penalize certain DREs more than others, as the hiring for this position obey highly bureaucratic procedures, that take into account essentially how long the teachers have been in the job (Basilio, 2010). The specific teacher training, an element that has been considered essential to this profession (Labaree, 1992), is taken as of secondary importance (Basilio, 2010). As a result, a significant number of teachers employed under temporary contracts is composed by teachers that are teaching subject matters in which they have no prior training. Besides that, they have to teach in different schools if they want to "fill their schedules", as they say, and earn a decent salary (Basilio, 2010).

Therefore, even though the disconnect between contracts and training may solve a bureaucratic problem for school management, as it guarantees the presence of teachers in the classroom, it creates a pedagogical problem to schools and to teachers, that see themselves with little means to do the work they were hired to do.

The analysis helped thus to document, in a larger scale, what researches based on observations and interviews with teachers have been showing for many decades, *i.e.*, the fact that teachers' working conditions and earnings affect the students' academic performance. These results show the fruitfulness of analyses that associate the types of teachers' employment contracts and the academic results to better understand the educational inequality that structures the school offer in São Paulo, showing that the sorts of contracts help to construct a space of educational advantages that is opposed to a space of disadvantages.

The relational perspective adopted here, that go beyond the monographic study of individual schools, seems to show the importance of analyses that take into account the multidimensionality of schooling, as it can contribute to overcome the limits of analytical models centered in one or other aspect of this experience.

12 The DRE Centro-Oeste assembles the districts Alto de Pinheiros, Butantã, Campo Belo, Itaim Bibi, Jaguaré Jardim Paulista, Lapa, Moema, Morumbi, Pinheiros, Raposo Tavares, Rio Pequeno Saúde, Vila Leopoldina, and Vila Sonia. The DRE Centro-Sul the districts of Bela Vista, Cambuci, Cursino, Ipiranga, Liberdade, Mooca and Sacomã, Vila Mariana, Vila Prudente. The DRE Leste 5 the districts Água Rasa, Aricanduva, Belém, Carrão, São Lucas, Tatuapé, Vila Formosa, and Vila Maria.

More specifically, a multidimensional perspective reveals that the exclusive focus on family-school relations or on teachers' formation, as has been done by an important part of the literature, is not enough to advance our understanding on the processes that lead to educational inequality.

In terms of public policy, it is not difficult to see the harmful effects of single-cause analyses. The fact that indicators of school results do not take into account teachers' working conditions and, in spite of that, can be considered as the only starting point of policies, with great public expenses, show that there is space for improvement.

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ANNEXES

Annex 1 – Description of the coordinates of active variables in axes 1 and 2 of Graph 1.

Axes		Axis 1		Axis 2	
Variance of axes		30.35%		21.59%	
Variables		Negative coordinates	Positive coordinates	Negative coordinates	Positive coordinates
Active variables	IDESP 5th grade elementary education	-0.67			0.02
	IDESP 9th grade elementary education	-0.84		-0.02	
	IDESP senior year high school	-0.85		-0.10	
	Teacher cumulation of contracts by examination in the state network		0.52	-0.38	
	Teacher cumulation of contracts by examination in the state network + other public network		0.43		0.20
	Teacher contracts by examination (with no cumulation)	-0.06			0.78
	Teacher stable substitute contracts	0.44		-0.06	
	Teacher temporary substitute teachers	-0.39		-0.70	
	Teacher works without specific teaching degree (substitute contract PEB I)		0.22	-0.80	

IDESP: Education Development Index of the State of São Paulo (Índice de Desenvolvimento da Educação de São Paulo); PEB I: basic education teacher I (professor da educação básica I).

Source: created by authors.

**Annex 2 – Description of supplementary variable
coordinates on axes 1 and 2 in the Graph 1.**

Axes		Axis 1		Axis 2		
Variance of axes		30.35%		21.59%		
Variables		Coordinates		Coordinates		
		Negative	Positive	Negative	Positive	
Supplementary variables	Student enrollment in the early years of elementary education	State network		0.42		0.08
		Municipal network	-0.32		-0.18	
		Private network	-0.04			0.28
	Student enrollment in the late years of elementary education	State network	-0.04		-0.38	
		Municipal network		0.08		0.28
		Private network	-0.08			0.26
	Student enrollment in high school	State network		0.30	-0.36	
		Municipal network		0.14		0.06
		Private network	-0.23			
		Selective public network	-0.40			
	Number of state schools, by dre, that participated in enem 2015		-0.61			0.02
	Number of inhabitants in the cities that compose each DRE	Until 50 thousand inhabitants	-0.65		-0.10	
		From 50 to 100 thousand inhabitants	-0.13		-0.06	
		From 100 thousand to 500 thousand inhabitants		0.31		0
		More than 500 thousand inhabitants		0.51		0.13
	IDHM income 2010 Of the cities that compose each DRE	Very high		0.01		0.08
High			0.01		0.33	
Average		-0.01		-0.43		
Low		-0.13		-0.21		
IDHM education 2010 Of the cities that compose each DRE	Very high		0.03		0.08	
	High		0.13		0.18	
	Average	-0.10		-0.12		
	Low	-0.13		-0.32		
Principals contracted by public exam		-0.50			0.29	

DRE: Regional Education Boards (Diretorias Regionais de Ensino); ENEM: National High School Exam (Exame Nacional do Ensino Médio); IDHM: Municipal Human Development Index (Índice de Desenvolvimento Humano Municipal).
Source: created by authors.

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