

INDISCIPLINE IN PISA: BETWEEN INTRA- AND EXTRA-SCHOOL FACTORS*

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ABSTRACT

This study aims to analyze the phenomenon of school indiscipline using data from PISA 2012; to apply a multilevel linear regression model considering the disciplinary climate as the dependent variable and to identify explanatory intra- and extra-school factors associated with indiscipline. The most significant contribution of this paper is to point out that the indiscipline issue seems to be more dependent on intra- than extra-school factors. Classical variables such as socioeconomic status, type of school and gender had no explanatory power over indiscipline, problematizing the idea that the phenomenon is directly associated to students' social background. The school proportion of repeaters proved to be the factor of greatest impact on indiscipline.

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KEYWORDS SCHOOL INDISCIPLINE • PISA • MULTILEVEL LINEAR REGRESSION • STUDENT BEHAVIOR.

INDISCIPLINA NO PISA: ENTRE O INTRA E O EXTRAESCOLAR

RESUMO

São objetivos deste trabalho: analisar o fenômeno da indisciplina escolar por meio dos dados do PISA 2012; aplicar um modelo de regressão linear multinível tendo o clima disciplinar como variável dependente; e identificar fatores explicativos intra e extraescolares associados à indisciplina. A contribuição mais significativa deste trabalho é apontar que a indisciplina parece ser mais dependente de fatores intra do que extraescolares. Variáveis clássicas como nível socioeconômico, tipo de escola e gênero não apresentaram poder explicativo sobre a indisciplina, o que tenciona a tese de que o fenômeno se associaria diretamente à origem social dos estudantes. A proporção de repetentes da escola se mostrou o fator de maior impacto na indisciplina.

PALAVRAS-CHAVE INDISCIPLINA ESCOLAR • PISA • REGRESSÃO LINEAR MULTINÍVEL • COMPORTAMENTO DO ALUNO.

INDISCIPLINA EN EL PISA: ENTRE LO INTRA Y LO EXTRAESCOLAR

RESUMEN

Son los siguientes los objetivos de este trabajo: analizar el fenómeno de la indisciplina escolar por medio de los datos del PISA 2012; aplicar un modelo de regresión lineal multinivel con el clima disciplinar como variable dependiente; e identificar factores explicativos intra y extraescolares asociados a la indisciplina. La contribución más significativa de este trabajo es la de señalar que la indisciplina parece ser más dependiente de factores intra que extraescolares. Variables clásicas como el nivel socioeconómico, el tipo de escuela y el género no presentaron poder explicativo sobre la indisciplina, lo que proyecta la tesis de que el fenómeno se asociaría directamente al origen social de los estudiantes. La proporción de repetidores de la escuela se mostró el factor de mayor impacto en la indisciplina.

PALABRAS CLAVE INDISCIPLINA ESCOLAR • PISA • REGRESIÓN LINEAL MULTINIVEL • COMPORTAMIENTO DEL ALUMNO.

INTRODUCTION

In recent years, classroom disciplinary climate has become a central variable to understand educational inequalities, particularly in the Brazilian context.

Firstly, because indiscipline has come to occupy, particularly in studies approaching large-scale testing, a prominent position in analyses about performance differences among students, together with classical sociological variables such as social background, sex and race.¹ In this perspective, the recurrent association between disciplinary climate and academic achievement in various studies based on large-scale assessment is an indication that school indiscipline is one of the most relevant factors for explaining students' unequal learning opportunities.

Secondly, because although the perception of teachers and students about the disciplinary environment varies greatly across nations, Brazil is situated precisely among those countries in which school actors most frequently report classroom disciplinary problems. The most illustrative example is the Teaching and Learning International Survey

¹ The Programme for International Student Assessment (PISA) and the Teaching and Learning International Survey (TALIS), for example.

(TALIS), which collects international data about the teaching environment and teachers' working conditions. Results for 2008 and 2013 indicate that Brazilian teachers are the ones who reported to spend the greatest amount of time to keep order in the classroom: 18% of class time in 2008, and 20% in 2013, the international average being 13% for both years. Not for no reason, 64% of Brazilian teachers in the late years of primary education reported to have over 10% of their students with behavior problems in the classroom, while the percentage of teachers reporting the same problem is below 15% in countries like Japan and Norway (ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT – OECD, 2014a).

Thirdly, the indiscipline factor has proved important for understanding a few subtle and apparently concealed processes of selection, concentration and segregation found in the Brazilian school system. In Brazil, as recent studies indicate, we often find an unequal distribution of students with characteristics of “presumed social disadvantage” across different schools, in such a way that some schools tend to concentrate students with a very homogeneous profile. Although various factors can explain this segregation process, disciplinary conduct constitutes an important element for analyzing this process. As shown in a study conducted by Alves *et al.* (2015) about concealed student selection practices by public schools in poor suburban areas in the state of São Paulo, students' disciplinary conduct constitutes the main element that guides the selection practices used by schools. Such practices can express themselves primarily in two modes of selection:

- (1) Avoidance, which consists of denying registration and not accepting enrolments when applicants are evaluated as a supposed threat to discipline; and (2) concealed expulsion, when undesired students are invited to find another school due to conflicts and behavior problems (ALVES *et al.*, 2015, p. 137).

As the authors conclude (ALVES *et al.*, 2015, p. 137), “In both cases, the main generating principle of practices and processes is the pursuit of a disciplined school environment”,

even though, as data from the study indicate, such practices seem to “overly punish families of lower socio-economic and cultural levels who present dispositions that are more distant from the school culture” (ALVES et al., 2015, p. 137). Results of research conducted in various social and school contexts seem to corroborate the relevance of the disciplinary question in building these and other strategies of “avoidance” and “expulsion” of “undisciplined” students. The study conducted by Nogueira (2013) about schooling strategies for the children of Brazil’s so-called new middle class, for example, revealed that teaching quality is not the main element considered by parents when choosing a private school; rather, they value particularly criteria such as the possibility to offer their children a safe environment within and around the school, as well as to ensure they can be with peers that parents deem “good people”, and study in a classroom environment with less indiscipline problems.²

² The term “new middle class” was developed by Neri (2011) from the fact that typical middle-class characteristics were to be found in the population segment that emerged in recent years in Brazil. This denomination, however, is not a consensus among researchers. Souza (2010), for example, emphasizes that “new working class” would be a more adequate way to designate this group, as economic appropriations are supposedly not accompanied by an appropriation of cultural capital.

Also noteworthy is that other studies indicate that indiscipline is one of the factors that contribute most to teachers’ dissatisfaction and stress, impacting teacher career attractiveness, and teachers’ permanence in it (OECD, 2005). In Brazil, the work developed by Tartuce, Nunes and Almeida (2010) revealed that, in addition to the low wages and scarce social prestige, students’ disciplinary behavior is one of the most mentioned reasons for secondary students to decide not to pursue a teaching career. In view of such strategies, it is hardly surprising that students, too, show a true “refusal” towards so-called undisciplined students. Abramovay and Waiselfisz (2015) indicate, for example, that when asked to mention who they would not like to have as classmates, the great majority of students, i.e., 41.4% of students surveyed, indicate “rowdy” students; this rate is 7.7% for transvestites, 5.5% for students coming from the prison system, 3.5% for nerds, and 0.7% for poor people. All this indicates that the problem of segregation in the school environment has become of great relevance to the theme of quality and equity in educational systems and, more broadly speaking, to the theme of social justice (COSTA; BARTHOLO, 2014). As Costa and Bartholo indicate (2014, p. 1185),

Evidence from various countries, including Brazil, suggest that concentrating students with specific characteristics in certain schools can influence the way they are treated, the quality of teaching and their aspiration to subsequent education levels.

This article intends to contribute to the expansion and visibility of studies on the phenomenon of school indiscipline. Its goal is to analyze the phenomenon of school indiscipline using data from PISA 2012. By using a multilevel linear regression model which takes indiscipline as dependent variable, we sought to identify intra- and extra-school factors associated with the disciplinary climate reported by Brazilian students.

INDISCIPLINE: BETWEEN INTRA- AND EXTRA-SCHOOL FACTORS

Its relevance notwithstanding, the theme of indiscipline has so far been scarcely explored in educational research. In her classic book *Une étude sur l'indiscipline en classe* (1986), the Portuguese researcher Maria Teresa Estrela already warned that the problem would become better known for passionate discourses by teachers and the press than for descriptions and analyses provided by scientific research. In Brazil, the literature reviews by Silva (1998), Szenczuk (2004) and Aquino (2016) tell us that the phenomenon is still scarcely studied and seldom approached in a direct, explicit way, figuring as a secondary theme in works that focus on other dimensions of school life.

In Brazil, it is remarkable that, although the different large-scale testing programs the country participates in include questions concerning students' conduct towards school rules, the phenomenon of indiscipline is seldom approached as a specific research problem, its treatment occurring more frequently as one of the factors explaining academic achievement. Two works, however, could be cited as an exception to that rule. The first is a study conducted by Moricone and Bélanger (2015) titled *Comportamento dos*

alunos e uso do tempo em sala de aula: evidências da TALIS 2013 e de experiências internacionais [Student's Behavior and the Use of Classroom Time: Evidence from 2013 TALIS and International Experiences]. The study was based on data for the three Latin American countries participating in the TALIS 2013 – Brazil, Chile and Mexico. Using hierarchical linear models, it sought to investigate the factors associated with the amount of time spent by teachers to keep classroom order and the factors that might be associated with the proportion of students with behavior problems, according to teachers' perceptions. Among the main findings, it is worth highlighting that the amount of time spent by teachers to keep classroom order is directly associated with factors such as teacher experience, teacher sex (advantage to men), initial teacher education characteristics, attending professional development programs, and the levels of professional collaboration in schools. The second study, titled *As percepções dos estudantes mineiros sobre a incidência de comportamentos de indisciplina em sala de aula: um estudo baseado nos dados do Simave/Proeb 2007* [Minas Gerais Students' Perceptions about the Incidence of Classroom Indiscipline: A Study based on Data from the Simave/Proeb 2007], was conducted by Silva and Matos (2014) based on data from the Program for Evaluation of Public Education (Proeb, 2007), which is part of the Minas Gerais State Public Education Evaluation System (Simave). In the study, the authors analyzed data referring to students in grades 5, 9 and 12 of schools in Minas Gerais. The research sought to relate students' perception of indiscipline to the following variables: education level, student sex, socioeconomic status, number of grade repetitions, proficiency in Portuguese and mathematics and teachers' pedagogical practices (teacher requirement; teacher interest and commitment; teacher openness and availability). Among the main findings is the strong relationship between indiscipline and academic achievement, and between teachers' pedagogical practices and indiscipline. Overall, these results corroborate that teachers' practices and characteristics constitute fundamental elements to understand the frequency of

school indiscipline, as already suggested by qualitative studies which investigated classrooms' day-to-day (KOUNIN, 1977; ESTRELA, 1986; AMADO, 1998; SILVA, 2007).

It is worth highlighting that approaching indiscipline as a specific object of research not only gives the phenomenon its due visibility and importance, but also constitutes a possibility to think about the production of educational indicators that comprehend the multiple roles played by schools and education systems. As Pires (1985), Silva (2007) and Silva and Matos (2014) warn, the terms "school success" and "school failure", which are commonplaces in the educational field to indicate performance, pass, failure, grade repetition and dropout rates can take on new meanings when we use as a basis other purposes of schools and educational systems besides knowledge acquisition. Therefore, considering that schools historically take on the role of preparing children and youths for life in society, we could talk about a new field of school failure: failure in school socialization (AFONSO, 1988; SILVA, 2007). According to Silva and Matos (2014, p. 715),

If failure in students' socialization does not appear often in education statistics, it is because, on the one hand, this imposes building rigorous indices to measure it and, on the other hand, because the instruction role is presented as the fundamental purpose of schools.

All this ends up hindering or inhibiting the production of studies or indicators that seek to evidence other forms of school failure. Thus, we underline that school indiscipline is considered here both as an indicator of failure in students' socialization and as one of the possible elements explaining their cognitive performance.

One aspect that researchers often highlight about the subject is the existing tendency in the educational context to relate indiscipline and student social background (SILVA, 2007; AMADO, 2001). In this perspective, a great many people adhere to the idea that a possible increment in undisciplined behavior in schools in recent decades would be directly associated to the massive entry of students of lower

socioeconomic status in school, which was enabled by the increasing democratization of education in most Western nations. Although we have no statistics that allow proving such an increase of indiscipline problems in schools compared to other periods, its most convincing explanation seems to reside in identifying possible discontinuities between the forms of socialization practiced in students' families and those practiced in the school environment (TESTANIÈRE, 1967; BOURDIEU; PASSERON, 1975; DEBARBIEUX, 2001).

As Amado (2001) notes, in the educational field, researchers have often identified indiscipline as a kind of symptom of affective disturbs in the heart of families, or as the “symptom of a disarticulation between the goals, values and practices of two subsystems – school and family” (AMADO, 2001, p. 50). Hence the relevant presence of studies that seek to relate aspects of children's and youths' family life to any forms of deviant behavior: indiscipline, violence, delinquency, etc. As an example, the author cites the pioneering work of Feldhusen (1979), who found children who showed some kind of antisocial behavior to be in disadvantage compared to their peers in aspects such as: the discipline exercised by the father was loose, and supervision by the mother, inadequate; parents were hostile and indifferent towards the child; the family was not cohesive; parents used physical punishment to deal with children's weaknesses. As Amado (2001) stresses, much of these conclusions have been receiving support from studies conducted in various types of investigations and contexts, which would corroborate the weight of family socialization in explaining antisocial conducts in children and youths.

In the same perspective, most of research points out that teachers, too, tend to primarily attribute to families – particularly families of lower socioeconomic status – the cause of students' undisciplined behavior in schools (ABRAMOVAY; CASTRO, 2003; WAISELFISZ, 1998). That explains the fact that families are often accused of being “unstructured”, of not imposing limits to children, of not having time to children's education and of not caring about their school life. As Mello (2005) notes, there would be a tendency in Brazil to perceive

families of lower classes as incompetent for educative work. Thus, parents would be viewed as culturally unqualified, and their essential socialization roles would be “responsible for generating ‘deformed personalities’ which are unacceptable and capable of committing the greatest atrocities” (MELLO, 2005, p. 52). This kind of discourse has contributed to a permanent discrediting of families and students of the lower classes, who are often represented – in a negative, generalized way – as “undisciplined”, “rowdy” or “violent”. The main point in this type of analysis is that students of lower classes would reproduce in school the undisciplined behavior they develop and manifest at home.

As we will see, one of the main contributions of the present work will consist precisely of pondering on this type of analysis, which is hardly suitable to the complex, multi-factor character of the phenomenon of indiscipline. Therefore, if from the sociological viewpoint, it is impossible to deny the importance of social background and family socializing practices in explaining educative phenomena, on the other hand, it is necessary to avoid any kind of determinism.³

In the sociological field, recent analyses have allowed to think about the phenomenon of indiscipline in its complexity, so as to consider the multiple school and non-school factors that articulate to explain it. Lahire (1997), for example, emphasizes that although it is common for us to consider and judge children’s school behavior as individual personality or character traits, as if these emerged within a void of social relationships, it is mainly in the interrelation with members of the family group that the child tends to build some self-control, some disposition to orderly life, a sensitiveness to verbal order, and the feeling that certain limits should not be crossed. Thus, one can expect, as the author underlines, that when what is proposed by the school agrees with what the student has internalized from his family life, then he will show an attitude of autonomy regarding school demands (LAHIRE, 1997). However, when the rules of the game in both spaces are too dissonant and cannot be experienced in harmony by students, this gives

3 As Amado (2001) and Alves (2016) emphasize, researchers about the subject tend to agree about the complex nature of the phenomenon of indiscipline, whose factors are difficult to define, requiring a solid research work that is incompatible with explanatory schemes involving a causality that is linear and simplifying.

way to an attitude of “dislocation” regarding the school (LAHIRE, 1997).

However, although Lahire argues that the conducts of children in school can be understood in terms of a greater or lesser agreement between family configurations and the school environment, we must pay attention to the fact that families and students of lower classes do not constitute a homogeneous category, which means that there is no unity in these families’ and their children’s behavior. Thus, we must highlight that

[...] individuals can only have general and coherent dispositions that are transposable from one sphere of activity to another, or from one practice to another if – and only if – their social experiences have always been governed by the same principles. (LAHIRE, 2002, p. 18)

Therefore, although Lahire (2002) admits there are family and social worlds that are very coherent in their socializing actions, in which adults’ behaviors are coherent with each other, in which socializing principles do not cancel each other, allowing such actions to achieve their effects on children in a regular, systematic and lasting way, such model does not tend to last in the current world. Therefore, to the author, if sociology cannot deny the weight of past socializations to understand how subjects act in the school environment,⁴ it is necessary to consider, however, that in each new situation that school presents to students, these are driven to mobilize the internalized schemes that are roused by these situations (Lahire, 2002).

Although students’ forms of family and social life do constitute an important dimension to analyze school indiscipline, they will never constitute, by themselves, the only factors that explain the phenomenon. Therefore, it is always necessary to consider them in their articulations with school-specific processes. As Millet and Thin (2005) warn, the existence of tensions between dispositions required by the school and those effectively built by students in their family environment constitutes only one of the conditions under which there can emerge behaviors of rupture with

⁴ In the term “past socializations”, *past* tends to designate socializations occurring both prior to school entry and in parallel with it, since because children are entering early in school, family socialization tends to occur more and more in parallel with school socialization.

school rules, or rupture with a school bond according to school demands. Turning the analysis specifically towards undisciplined behavior, one can say that, by reducing the phenomenon's explanation to the family field, we run the risk of neglecting the weight of the more contextual factors that can influence this phenomenon: pedagogical, relational and institutional factors. Thus, it is because we are constantly influenced by the contexts we live in that

[...] nothing of what we are driven to do, feel or think is reducible to what we internalized. Our actions depend on what lasting contexts and the most ephemeral circumstances can draw from us or, to the contrary, prevent us from doing. (LAHIRE, 2004, p. 336)

Therefore, everything leads us to believe that children's and youths' classroom behavior originates in the intersection between various social, school and non-school factors which combine as conditions of possibility for their occurrence.

In this respect, while there is no shortage in the literature of research associating indiscipline to extra school factors, particularly social background, forms of family life, student sex, changes in the contemporary forms of youth interaction, or the very crisis in the school model and its socializing factor, the same cannot be said about the analysis of the school-specific factors of indiscipline. Notwithstanding the power of extra-school factors to explain the phenomenon, evidence abounds that there are intra-school factors to indiscipline.

It would certainly be impossible to present or even summarize here the results of these studies. We emphasize, however, that from Kounin's (1977) classical works concerning classroom management, to various studies associated with the interactionist paradigm, to more recent works conducted from various perspectives, such as the sociological, psychological and pedagogical ones, research has been unanimous to identify that school practices work both as promoters and as enablers or worseners of indiscipline episodes in classrooms and schools (ESTRELA, 1986; SILVA, 2007; AMADO, 1998). Among those practices,

it is necessary to highlight the fundamental role of teachers' pedagogical actions which are associated to a higher or lower degree of effectiveness in preventing or mitigating indiscipline in the context of interaction with students in the classroom (ESTRELA, 1986; SILVA, 2007; AMADO, 1998).

METHOD

In this study, we used data from the Programme for International Student Assessment (PISA) 2012, which involves 15-year-old students. In 2012, 19,204 Brazilian students participated. In this international assessment, standardized cognitive tests and context questionnaires are administered to students and school principals to gather information about sociocultural characteristics, as well as school environment and practices. With regard to sample design, the PISA is a complex survey involving multistage sampling, with unequal probabilities of sampling and stratification. It is a sampling stratified in two stages: schools were sampled with proportional probability to a measure of school size, in function of the estimate number of 15-year-old students enrolled in the school who could participate in the PISA; the second sampling unit was the students within previously sampled schools. Thus, sampling weights were assigned to both schools and students (OECD, 2014b). We excluded all cases with missing values for some of the variables analyzed (listwise), with the assumption of missing completely at random (LITTLE; RUBIN, 2002). Thus, our final sample resulted in approximately 12,000 students in Brazil, a figure which may vary slightly in function of the analysis conducted.

In this work, we sought to identify characteristics of students and schools (intra-school and extra-school factors) which are associated with indiscipline. The variables selected for this study were: student gender, school type, school size, grade repetition, school infrastructure, disciplinary climate (indiscipline), socioeconomic status (student and school level), teacher-student relationship, school proportion of repeaters.

We selected the PISA variables associated with the educational indicators proposed by Alves and Soares (2013): school socioeconomic status, infrastructure and complexity. For the socioeconomic status (of both school and students), we used the PISA index of economic, social and cultural status (ESCS) (OECD, 2014b); as an indicator of school complexity, we used school size (number of students enrolled); for school infrastructure, we used the PISA index of quality of physical infrastructure (OECD, 2013).

The PISA approaches various indicators related to classroom learning environment. In the present work, we use two of them: the index of disciplinary climate and the index of teacher-student relations (OECD, 2013). Both are indices formed by various questions (Chart 1). With regard to the index of disciplinary climate, as discussed earlier, it approaches mainly a few situations and behaviors described in the literature as typical instances of indiscipline, not to be confused with other, more serious phenomena, such as school violence. It is worth noting that, in the PISA 2012, students were asked about the disciplinary climate in mathematics classes (OECD, 2013).

As for grade repetition, the 15-year-old students reported whether they had repeated at least once. This variable was also used for school level (proportion of repeaters). With regard to the type of school, it is important to say that most Brazilian schools involved in the PISA 2012 are public, accounting for 85,7% of institutions. All data were collected from the student and principal context questionnaires.

Chart 1 describes the PISA 2012 variables we used.

CHART 1 – Description of the variables used in the model

VARIABLE	DESCRIPTION
DEPENDENT VARIABLE	
Index of disciplinary climate	<p>"How often do these things happen in your mathematics classes?" (Student questionnaire)</p> <p><i>(every class; most classes; some classes; never or hardly ever)</i></p> <ul style="list-style-type: none"> - Students don't listen to what the teacher says. - There is noise and disorder. - The teacher has to wait a long time for students to quiet down. - Students cannot work well. - Students don't start working for a long time after the lesson begins.
INDEPENDENT VARIABLES	
Gender (male)	0 = female; 1= male.
School type (private)	0= public; 1= private.
School size	Number of students enrolled.
Grade repetition (has repeated)	0= has not repeated; 1= has repeated.
Index of teacher-student relations	<p>Thinking about the teachers at your school: to what extent do you agree with the following statements? (Student questionnaire)</p> <p><i>(strongly agree; agree; disagree; strongly disagree)</i></p> <ul style="list-style-type: none"> - Students get along well with most teachers. - Most teachers are interested in students' well-being. - Most of my teachers really listen to what I have to say. - If I need extra help, I will receive it from my teachers. - Most of my teachers treat me fairly.
Index of quality of physical infrastructure	<p>Is your school's capacity to provide instruction hindered by any of the following issues? (School questionnaire)</p> <p><i>(not at all; very little; to some extent; a lot)</i></p> <ul style="list-style-type: none"> - Shortage or inadequacy of school buildings and grounds. - Shortage or inadequacy of heating/cooling and lighting systems. - Shortage or inadequacy of instructional space (e.g., classrooms).
Index of economic, social and cultural status (ESCS)	<p>The ESCS index includes: (Student questionnaire)</p> <ul style="list-style-type: none"> - highest occupational status of parents (HISEI); - highest parental education expressed as years of schooling (PARED); - home possessions (HOMEPOS), which comprises family wealth (WEALTH); - cultural possessions at home (CULTPOS), home educational resources (HEDRES).
School proportion of repeaters	Proportion of students in the school who have already repeated a grade.
School socio-economic status	School average socio-economic status.

Source: OCDE (2016).

Note: The indices are created from the combination of various items. Therefore, various responses can be summarized in a single result. The indices used were calculated by the PISA itself. The methodology used was Item Response Theory (IRT) (Partial Credit Model). The indices primarily have no maximum or minimum limit, but most values (99%) range from -3 to +3.

We used a multilevel linear regression model, considering two levels: students (level 1 units) grouped in schools (level 2 units). We used a variance components model (VCM), also known as random intercept model (GOLDSTEIN, 2003). The dependent variable, Y, represents indiscipline. It is a continuous variable represented by the index of disciplinary climate. We used the estimating procedure implemented in MPLUS software version 7.2, denominated MLR (maximum likelihood with robust standard errors estimator).

Thus, two important methodological procedures were employed in this study: the use of multilevel models and school and student sampling weights for calculating model parameter estimates. Therefore, if we fail to consider the PISA's hierarchical data framework and sampling design, we can make several mistakes, such as: using biased parameter estimate values; considering an estimate as statistically significant, when in fact it is not significant, among others.

Still regarding the multilevel models, we tested three models:

M0= Null model (intercept-only model), without explanatory variables.

M1= level 1 variables (students): student gender, grade repetition, socio-economic status, teacher-student relations.

M2= M1 + level 2 variables (school): school type, size, infrastructure, average socio-economic status, proportion of repeaters.

THE INDEX OF DISCIPLINARY CLIMATE IN THE PISA CONTEXT QUESTIONNAIRE

Since the program's first edition, in 2000, the PISA questionnaires administered to students and schools contain items that allow identifying aspects of classroom disciplinary climate. In the questionnaire administered to schools, for example, a few items approach the perception of principals about the influence that certain behaviors and situations might have on students' learning. Some of these items allow to infer the presence of behaviors or situations that negatively affect classroom disciplinary climate: students not attending classes; student lack of assiduity; students disrespecting teachers; students being late to classes; students disturbing classes; student consumption of alcohol and illegal substances; students threatening or molesting other students; poor teacher-student relations. We highlight that these combine items related to behaviors or situations that violate typical school rules, such as being late to class, and behaviors and situations commonly described in the

literature as typical of school violence (SILVA, 2007; SILVA; NOGUEIRA, 2008).

In turn, the student questionnaire has two sets of items relating to indiscipline. The first has items referring to student lateness and absenteeism. As Silva (2007) identified, “being late to class” and “truancy” constitute, as far as school norms are concerned, behaviors typical of indiscipline, as they break the so-called “rules concerning classroom times”. In the PISA, however, the index of disciplinary climate is built from a second set of items approaching the frequency with which certain behaviors are to be found in the classroom: students don’t listen to what the teacher says; there is noise and disorder; the teacher has to wait a long time for students to quiet down; students cannot work well; students don’t start working for a long time after the lesson begins. Thus, in this study, we used the index built by the PISA team, which is part of the dataset for 2012.

As Sortkær and Reimer (2016) note, the building of indices of disciplinary climate tends to be driven by theoretical considerations in some studies, and by what seems to be an availability of data in other cases. Therefore, one aspect we should highlight about the PISA is that the questionnaire is not an instrument specifically created to study the phenomenon of indiscipline. Thus, it is worth underlining that, as Silva and Nogueira (2008) point out, it is common to find, in the academic and educational field, divergence, confusion, oscillation and insufficient definition in delimiting concepts such as indiscipline, incivility, transgression and violence. Due to this indistinction, as the authors suggest, we have been employing the concept of indiscipline to designate those behaviors that violate strictly school norms, whose immediate purpose is to ensure the necessary conditions for pedagogical work. Although this concept includes some behaviors that violate broader social norms of an ethical-social nature, which serve to regulate coexistence between subjects in the school environment, they still do not reach the violence level, as one cannot find in them any intention to cause material harm to others or any capacity to hit others in their physical, psychological or moral integrity.

It is worth stressing that the items used to compose the PISA index of disciplinary climate approach situations and behaviors that are quite similar to those described in the specialist literature as indiscipline instances (AMADO, 1998; SILVA, 2007; SILVA; NOGUEIRA, 2008). One example is the item “there is noise and disorder”, which expresses a behavior described in the literature as a form of “deviation from classroom communication rules” (SILVA, 2007; AMADO, 1998). Therefore, in PISA, we are talking about behaviors which closely approximate typical indiscipline cases and which therefore cannot be confused with the more serious episodes of violence that have plagued schools around the world. Therefore, working with the PISA index of disciplinary climate means to identify the extent to which students report the presence of certain indiscipline-typical behaviors in their classrooms.

Thus, a primary aspect to be analyzed regarding the PISA approach to disciplinary climate is the fact that, over the program’s various editions, Brazil has stood out as one of the countries where students report most strongly the presence of a poor classroom disciplinary climate. In 2012, for example, the country was ranked among the participants with the worst disciplinary climate rates, behind only Argentina and Tunisia. Table 1 shows Brazilian students’ response rates for the PISA 2012 index of disciplinary climate questions.

TABLE 1 - Distribution of students’ responses to questions in the index of disciplinary climate - PISA 2012 Brazil

QUESTION	EVERY CLASS	MOST CLASSES	SOME CLASSES	NEVER OR HARDLY EVER
Students don't listen to what the teacher says.	13,1%	29,0%	42,0%	15,8%
There is noise and disorder.	16,4%	24,4%	41,6%	17,6%
The teacher has to wait a long time for students to quiet down.	14,1%	22,6%	37,2%	26,1%
Students cannot work well.	10,8%	21,7%	41,6%	25,9%
Students don't start working for a long time after the lesson begins.	19,8%	24,1%	34,8%	21,4%

Source: Data from PISA 2012 (the authors' own elaboration).

Note: In the PISA 2012, students were asked about the disciplinary climate in mathematics classes.

According to Table 1, “not starting to work for a long time after the lesson begins” is the undisciplined behavior most reported by students, 43,9% of which affirmed that it occurs in “every class” or “most classes”. Next comes “not hearing what the teacher says”, which, as 42,1% of students affirm, occurs in “every class” or “most classes”.

One interesting aspect about these data is the high frequency with which they occur in Brazilian classrooms. As Silva (2007) identified in a study with classes of grade 9 of primary school, undisciplined behavior does not always put pedagogical activities at risk, constituting only rule-breaking instances with consequences at the individual level and hardly any significance to classroom activities. This means, as Cohen (1971) notes, that deviations do not necessarily cause destruction in a given organization, as every organization has some degree of tolerance to them. Silva (2007) draws attention to the fact that indiscipline only takes on a truly disruptive character, hindering or preventing pedagogical action, when it occurs in specific ways: being frequent, involving various students at once, breaking various rules at once, and occurring at specific points during a lesson, particularly at those points where it prevails over or puts at risk the teacher’s speech. It is no less concerning, therefore, that “not listening to what the teacher says” is the second type of indiscipline most reported by students.

Another important aspect about indiscipline in the PISA regards the strong relationship identified between indiscipline and student cognitive performance. In 2000, results of this assessment already indicated that the disciplinary climate in schools would strongly affect students’ results (ORGANIZAÇÃO PARA A COOPERAÇÃO E DESENVOLVIMENTO ECONÔMICO – OCDE, 2001). In the Brazilian case, it indicated further that while students as a whole lose in terms of performance with a degraded disciplinary climate, it is precisely the poorest students that have their results impacted by studying in schools where the presence of indiscipline is aggravated (OCDE, 2001). In the program’s 2009 edition, the report emphasized that the

[...] disciplinary climate in the classroom and school can also affect learning. Classrooms and schools with more disciplinary problems are less conducive to learning. (OCDE, 2013, p. 3)

According to the report, in 55 countries that participated in that edition of the PISA, including Brazil, students at schools whose classroom disciplinary climate is more conducive to learning tend to perform better in reading. The same was found in the 2012 edition. According to the note on Brazilian data, in schools where the disciplinary climate is more conducive, students perform better in mathematics, even when controlling for socioeconomic status and other school differences (OECD, 2012).

RESULTUS AND DISCUSSION

In this work, we investigate a few explanatory factors associated with indiscipline. Thus, Table 2 shows the intraclass correlation coefficients for each model.

TABLE 2 – Intraclass Correlation Coefficient

MODEL	[0]	[1]	[2]
Indiscipline	0.162	0.145	0.149
(School)			

Source: Data from PISA, 2012 (the authors' own elaboration).

The intraclass correlation coefficient can be understood as the proportion of variance explained by the grouping structure in the population (in this case, the “grouping structure in the population” is the school). Calculating the coefficient involves the proportion of group-level variance compared to total variance (HOX, 2010). As indicated in Table 2, in the null model (0), the intraclass correlation coefficient is 0.162. This means that 16.2% of the variance of indiscipline scores is at the group level (school). As for models M1 and M2, the variance of indiscipline scores at the group level is approximately 15%.

Table 3 shows the multilevel model parameter estimates.⁵

5 In the multilevel model, the hierarchical data structure is taken into account. The fixed part can be interpreted as the coefficients of an “ordinary” regression. In turn, the random part explains the underlying data structure, characterized by variability estimates. Including random effect for a specific variable means the influence of that variable on the response changes from one group to another – in our case, from one school to another. It is worth noting that, according to the model we chose in our study (variance components model), only the intercept is random, varying from one school to another.

TABLE 3 - Multilevel Model Estimates

MODEL	[0]		[1]		[2]	
	EST.	S.E.	EST.	S.E.	EST.	S.E.
FIXED PART						
Constant	-0,375	(0,032)	-0,260	(0,047)	-0,088	(0,129)
Gender (female vs. male)			-0,069	(0,041)	-0,067	(0,041)
Grade repetition (has not repeated vs. has repeated)			-0,219*	(0,046)	-0,164*	(0,050)
Teacher-student relations			0,063*	(0,021)	0,063*	(0,020)
Socioeconomic status			0,006	(0,024)	-0,017	(0,023)
School socioeconomic status					0,011	(0,156)
School type (public vs. private)					0,144	(0,375)
School size					-0,136*	(0,062)
School infrastructure					0,033	(0,124)
School proportion of repeaters					-0,277*	(0,106)
RANDOM PART						
Level 1 variance	0,774	(0,022)	0,768	(0,022)	0,768	(0,022)
Level 2 variance	0,150	(0,040)	0,132	(0,034)	0,122	(0,030)
Deviance	30772,92		30611,6		30556,4	

Source: Data from PISA 2012 (the authors' own elaboration).

Note: Standardized coefficients (Est.); * indicates statistically significant coefficient ($p < .05$); Standard error between parentheses (S.E.).

Firstly, regarding the interpretation of signals (positive or negative) of regression coefficients, it is worth highlighting that the scale of responses for the questions composing the index of disciplinary climate (dependent variable) is: 1- In every class; 2- In most classes; 3- In some classes; 4- Never or hardly ever. Here, we must remember that this index was calculated from the combination of five questions (Chart 1), their responses having been summarized in one result. Thus, the index is to be interpreted as: the smaller the value, the higher the degree of indiscipline. Therefore, coefficients with a negative signal mean an indiscipline increase, whereas a positive coefficient signal indicates an indiscipline decrease.

As shown in Table 3, we draw attention to the fact that variables described in the literature as relevant to explain indiscipline were not statistically significant. These are: socioeconomic status and gender (M1 and M2); school socioeconomic status and type (M2).

With regard to socioeconomic status, results are particularly instigating in that both the academic literature and teachers tend to associate indiscipline to students' social background. It is worth highlighting that, according to data from the PISA 2009, in 36 of the 65 participant countries, an association was found between disciplinary climate and school students' socioeconomic status. Curiously, except for Uruguay, in all Latin American countries participating in the PISA, including Brazil, this association was not found (OCDE, 2011). It is worth highlighting that relevant studies conducted in Brazil based on large-scale testing data had been questioning this unilateral association between indiscipline and student socioeconomic status. In the earlier mentioned study of Moriconi and Bélanger (2015), which analyzes data from the TALIS, the researchers found that, in Brazil, teachers who reported to have greater proportions of low socioeconomic status students in their classes reported to use more time to keep order in the classroom than their peers. However, when a more complete analysis model was employed,

[...] socioeconomic status and being a public-sector school did not prove associated with the amount of time reported for keeping order in any of these countries. To the contrary, it seems that differences between the teachers in private and public schools, or schools related to the socioeconomic status shown in Tables 8 and 9, stem from differences in other factors that may be more concentrated on one of these types of school - rather than the sector running the school or the socioeconomic status per se. (MORICONI; BÉLANGER, 2015, p. 36)

Likewise, we can mention the work conducted by Silva and Matos (2014) which focused on data from the Simave/Proeb – Minas Gerais. According to the authors,

When we analyze the association between schools' average indiscipline and socioeconomic status, the correlations found are among the lowest [...] for all years [...]. In grade 5 is the most extreme case: the correlation between schools' average socioeconomic status and indiscipline was not

statistically significant [...]. To the contrary, our findings indicate that social background does not constitute a major element to understand indiscipline. (SILVA; MATOS, 2014, p. 726)

Data concerning school type (public or private) contribute even further to question this association between social background and disciplinary climate. In Brazil, as we know, the differences in the socioeconomic profile of the students served by public and private schools are evident. Still, the school type variable did not prove statistically significant to explain the disciplinary climate. The same type of result was found in the study of Moricone and Bélanger (2015, p. 38):

As found in the analysis of the amount of time used to keep classroom order, there does not seem to be, in any of the countries studied, an association between the sector responsible for managing the school and the proportion of students with behavior problems in the classroom. Teachers in public schools, therefore, are not more likely to report more behavior problems – all the other variables maintained constant.

In turn, a large survey conducted by Unesco in partnership with the Brazilian Ministry of Education to investigate various aspects of Brazilian secondary education revealed that approximately four in every ten students say that one of the main problems in school is undisciplined students. Curiously, in most of the state capitals surveyed, the problem reaches greater proportions among private school students (ABRAMOVAY; CASTRO, 2003).

All these results allow us to inquire, contrary to what is suggested by a great part of the literature and accounts by teachers collected in academic research: is indiscipline truly explained by social background? The results of this and other works presented here indicate that the answer to this question is negative. However, these results must be prudently considered. And the strongest argument for this may be that the index of disciplinary climate built by the PISA comprehends just a few types of indiscipline, particularly

those considered more common and less grave (SILVA, 2007). One might conjecture that different types of indiscipline can be more or less affected by social and family factors. But in this respect, we should note that data available do not allow us to analyze, for example, school violence behaviors. A second explanatory hypothesis is that the non-association between indiscipline and socioeconomic status is owing to the fact that more trivial, less grave behaviors, like the ones composing the PISA index of disciplinary climate, would tend to occur in a more generalized way in schools, regardless of the socioeconomic background of the subjects involved. Finally, one might cogitate that phenomena such as indiscipline are more directly related to dynamic aspects of family life, such as families' socializing practices. However, despite these ponderations, we are driven to believe that all the evidence presented above allows us to, at least, relativize the weight of social background in explaining this phenomenon, and to flatly question any kind of determinism.

In turn, gender, as Sortkær and Reimer (2016) note, is usually ignored in the literature of classroom disciplinary climate, even though differences between boys and girls in terms of schooling stage and other learning outcomes are often approached in studies with data from large-scale tests. As we have seen, the gender variable was not statistically significant to explain disciplinary climate. This result counters various studies that have found girls to be likely to perceive the disciplinary climate more positively than boys.⁶ A plausible hypothesis to explain such results would be that the differences between boys and girls concerning antisocial conducts might be changing significantly in recent years, so as to produce changes both in the conducts and perceptions of girls about school rules. However, this type of hypothesis should be taken cautiously, and investigated by means of systematic research about the school reality, as gender relations and disciplinary climate are extremely complex and strongly affected by crystalized images about what the roles of boys and girls might be in our society.

In addition to these variables which are widely used to explain indiscipline, school infrastructure was not

⁶ Sortkær and Reimer (2016) cite the following works: Kuperminc *et al.* (1997) and Koth, Bradshaw and Leaf (2008).

statistically relevant either. Although we did not find studies analyzing specifically the relationship between school infrastructure and indiscipline, we expected a good infrastructure to positively impact the classroom environment. This hypothesis was based on the association found in the literature on the relationship between infrastructure and student proficiency.

In turn, school size presented a different result. In this respect, the larger the school, the greater the indiscipline. Although we did not find studies analyzing the relationship between school size and indiscipline, our results are quite similar to those found by Moriconi and Bélanger (2015), who examined the relationship between disciplinary climate and class size. With regard to the first variable, i.e., the amount of time used to keep classroom order, no significant association with class size was found. However, in Brazil, the “proportion of students with indiscipline problems in the classroom” variable is associated with class size. As the authors note:

In the three countries studied, the average class size is approximately 30 students, which can be considered high compared to the average 24 students in the TALIS 2013. (MORICONI; BÉLANGER, 2015, p. 40)

If, as the literature indicates, disciplinary climate is strongly related to the teacher’s effectiveness to manage the classroom through actions that allow him to prevent undisciplined behaviors, one might expect that management to be more effectively conducted in smaller classes.

Moreover, estimates suggest that the parameters associated with the grade repetition and teacher-student relations (M1 and M2), school size and school proportion of repeaters (M2) variables were statistically significant.

Thus, repeating a grade causes an increase in indiscipline. This effect is potentized when we consider the school’s composition: the higher the proportion of repeaters, the greater the indiscipline. In this perspective, the school proportion of repeaters proved the most relevant factor to explain indiscipline. These results are similar

to those found by Silva and Matos (2014) in schools in the state of Minas Gerais participating in the Simave-Proeb. According to the authors, there is a strong association between students' perception of indiscipline and their grade repetition experiences: "the mean perception of indiscipline increases systematically for all years as the number of grade repetitions increases" (SILVA; MATOS, 2014, p. 723). The researchers propose two explanatory hypotheses for this relationship. Firstly, indiscipline could be viewed as a kind of alternative followed by those students who do not show good school performance. It could be viewed as a remedy against the threat to students' self-esteem, reversing in favor of students the values proposed by the school. Such hypothesis is founded on the academic literature, according to the review conducted by Amado (2001). Secondly, this association may be reinforced by the common practice in Brazilian schools to create extremely homogeneous classes comprising predominantly students with undisciplined behavior.

Everything indicates, however, that this association between indiscipline and grade repetition could be viewed as a vicious cycle, as studies have evidenced precisely the strong potential of disciplinary climate to explain the grade repetition phenomenon. This is shown, for example, by Matos and Ferrão (2016, p. 631) as they analyzed data from the PISA for Portugal and Brazil:

In both countries, disciplinary climate works as a protection factor concerning grade repetition: the better the disciplinary climate (the less indiscipline) in the classroom, the smaller the probability of retention. The effect of disciplinary climate at the student level was stronger for Portugal (Brazil, odds ratio = 0.827; Portugal, odds ratio = 0.682). The relevance of the phenomenon of indiscipline is also evident when we compare its results with a classical explanatory variable of grade repetition: socioeconomic status. In Brazil, the effect of disciplinary climate at the student level is stronger (odds ratio = 0.827) than the effect of student socioeconomic status (odds ratio = 0.870).

In turn, teacher-student relations show an opposite effect, i.e., one of protection against indiscipline: the better the teacher-student relationship, the smaller the indiscipline. As we sought to evidence in discussing the intra-school and extra-school factors of indiscipline, the teacher constitutes a key element for understanding classroom disciplinary climate. His characteristics, attitudes and practices can play a key role in preventing undisciplined behavior. In this respect, one hypothesis of this work was for the teacher-student relationship variable to be related to disciplinary climate. That variable approaches relevant issues, such as the good relationship between teachers and students, the interest the teacher shows in students' well-being and arguments, his availability to help them and his fairness in treating them. Being open to the student, knowing how to listen to him, being available and showing interest in what he says are personal qualities of the teacher that usually act as a kind of "basis of his personal power or authority" in classroom. As Amado (2001) notes, when students recognize such qualities in the teacher, they tend to respond favorably to his requests, whether for a desire to please him or a desire to be like him. Finally, as investigations show, much of the undisciplined behavior in the classroom stems from teachers' lack of consistency in applying the rules (SILVA, 2007; AMADO, 2001). Among the actions that form a consistent disciplinary conduct is the teacher's ability to treat students in a fair, egalitarian way. As some research reveals, much of the conflicts experienced between students and teachers in schools stem from the feeling that the teacher did not provide a fair, egalitarian treatment to students. Thus, our results corroborate the teacher's centrality for explaining indiscipline.

There is also evidence of variability between schools regarding the incidence of indiscipline. The random parameter associated to level 2 is $\hat{\sigma}_{u0}^2 = 0.132$ (S.E.= 0.034) in M1 and $\hat{\sigma}_{u0}^2 = 0.122$ (S.E.= 0.030) in M2. These estimates indicate there are characteristics associated to the schools that lead to different incidences of indiscipline among students.

Finally, deviance is a model fit index. Usually, models with a lower deviance indicate a better fit (HOX, 2010). In this respect, when we added explanatory variables to the model, we expected the deviance value to decrease (i.e., we expected the fit to improve). This is why the null model is useful: it serves as a baseline for comparing with others models. Therefore, our results were as expected, as the value of deviance decreased from the null model (M0) to model 1 (M1), and from model M1 to model M2.

FINAL CONSIDERATIONS

As a whole, our results indicate that the most significant contribution of this work is to signal that indiscipline seems to be more dependent on intra-school than extra-school factors. However, these results should be viewed with caution. Thus, while they do not indicate that we should dismiss or neglect the question of students' social background in explaining indiscipline, they allow to at least question and problematize the long-crystallized idea in the educational world that the phenomenon of indiscipline is associated, in an almost deterministic way, to students' social background.

Another important contribution of this work consists in its very approach to indiscipline as a specific object, since the centrality achieved by the phenomenon requires us to try to better describe and understand it. This task presupposes developing research that seeks, from any theoretical and methodological perspectives, to identify its explanatory factors. This also involves the necessity of works using longitudinal data.

One limitation of this work resides in the fact that the response variable refers to the mathematics teacher (and what occurs in the classroom in that subject matter), whereas level 2 explanatory variables refer to the school (rather than the classroom). In this respect, it would be best to implement a three-level multilevel model (student, class and school) or a two-level model in which the second level would be the class. However, the PISA does not allow to aggregate data at the class level. It is worth noting that the literature indicates

the association between indiscipline and the pedagogical work developed by the teacher at the class level (KOUNIM, 1977; ESTRELA, 1992; AMADO, 2001; SILVA, 2007).

Finally, it is worth enquiring on the possible limits of the PISA index of disciplinary climate. Here, we highlight the need to refine the questionnaire items that form the index by means of a more extensive dialogue with the specific academic literature on phenomena such as indiscipline, incivility and school violence. Developing specific studies about the reliability and validity of student questionnaires in producing disciplinary climate indices is therefore necessary and can contribute to improve the indicators produced by the PISA and other large-scale assessments.

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APPENDIX

TABLE 4 - Descriptive statistics of disciplinary climate according to the explanatory variables

		MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Gender	Female	-2.48	1.85	-0.31	0.94
	Male	-2.48	1.85	-0.38	0.93
School Type	Public	-2.48	1.85	-0.37	0.94
	Private	-2.48	1.85	-0.22	0.93
Grade Repetition	Has not repeated	-2.48	1.85	-0.26	0.92
	Has repeated	-2.48	1.85	-0.48	0.95
Total		-2.48	1.85	-0.34	0.94

Source: Data from the PISA 2012 (the authors' own elaboration).

Note: Descriptive statistics calculated using sampling weights.

TABLE 5 - Descriptive statistics of the variables used

	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Disciplinary climate	-2.48	1.85	-0.34	0.94
Socioeconomic status	-4.67	2.45	-1.17	1.18
Teacher-student relations	-3.11	2.16	0.26	1.05
School socioeconomic status	-3.56	1.27	-1.17	0.79
Physical infrastructure	-2.75	1.3	-0.36	1.15
School size	39	4855	972.06	580.05
School proportion of repeaters	0	1	0.36	0.25

Source: Data from the PISA 2012 (the authors' own elaboration).

Note: With regard to binary variables, gender (47% males), grade repetition (37% repeat students), school type (18% private). Descriptive statistics calculated using sampling weights.

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