

Who can the school count on? The coproduction of public education by students' families

Guilherme Ferreira Soares¹

Josivania Silva Farias¹

¹ Universidade de Brasília / Programa de Pós-graduação em Administração, Brasília / DF — Brazil

This article discusses the coproduction of public education by student's families and how it is influenced by the family members' profile. Interviews were conducted with ten school principals, with sampling and analysis based on theoretical saturation, and a survey with 269 family members from Distrito Federal, using logistic regression as the data analysis methodology. From this, all categories of coproduction identified in Europe by Pestoff (2006) were confirmed, and another raised from the interviews, the coproduction by basic family support. Additionally, the data analysis showed significant influence of the families' level of education and their family habits on pedagogy, social, political and economic coproduction. The research highlighted the coproduction of public services by citizen in developing countries.

Keywords: coproduction; public services coproduction; citizen engagement; public sector; government.

Com quem a escola pode contar? A coprodução do Ensino Fundamental público por familiares de estudantes

Este estudo discute a coprodução da educação pública por parte de familiares de estudantes, suas diversas formas e, ainda, como ela é influenciada pelo perfil dos familiares. Realizaram-se 10 entrevistas com gestores escolares, com amostragem e análise apoiada em saturação teórica, além de um *survey* com 269 familiares de estudantes do Distrito Federal, com análise de dados baseada em regressão logística. Foram confirmadas as formas de coprodução identificadas por Pestoff (2006), em um estudo realizado na Europa, e emergiu uma nova forma, a coprodução pelo suporte básico. Também se concluiu que a escolaridade, os hábitos e as práticas de familiares influenciam a coprodução pedagógica, social, política e econômica. A pesquisa elucida a coprodução com cidadãos de serviços públicos em países em desenvolvimento.


Palavras-chave: coprodução; coprodução de serviços públicos; educação pública; setor público; governo.

¿Con quién la escuela puede contar? La coproducción de la educación primaria pública por familiares de estudiantes

Este estudio discute la coproducción de la educación pública por parte de familiares de estudiantes, sus diversas formas y cómo ella es influenciada por el perfil de los familiares. Se realizaron 10 entrevistas con gestores escolares, con muestreo y análisis apoyado en saturación teórica, además de un *survey* con 269 familiares de estudiantes del Distrito Federal, con análisis de datos basado en regresión logística. Se confirmaron las formas de coproducción identificadas por Pestoff (2006) en un estudio realizado en Europa, y emergió una nueva forma, la coproducción por el soporte básico. También se concluyó que la escolaridad, los hábitos y las prácticas de familiares influencian la coproducción pedagógica, social, política y económica. La investigación elucida la coproducción con ciudadanos de servicios públicos en países en desarrollo.

Palabras clave: coproducción; coproducción del servicio público; educación pública; sector público; gobierno.

DOI: <http://dx.doi.org/10.1590/0034-761220170301>

ISSN: 1982-3134 

Article received on September 29, 2017 and accepted on April 27, 2018.

[Translated version] Note: All quotes in English translated by this article's translator.

1. INTRODUCTION

The coproduction of the public good is presented by Löffler, Parrado, Bovaird and Van Ryzin (2008, p. 12) as the “[...] involvement of citizens in the delivery of public services to achieve results, which depend on their own behavior.” Thus, joint solutions are sought for collective problems (Klein, Salm, Heidemann, & Menegasso, 2012). Considering that the discussion on the coproduction of public services is extensive mainly in Europe and the United States but not in developing countries, questions have arisen such as:

- In what ways does coproduction occur in developing countries?
- How can the public service user profile influence coproduction?

In this sense, the present investigation had two objectives:

1. to identify the forms of coproduction by students' families in public elementary education, and
2. to verify the influence of the profile of students' families in the forms of coproduction.

In Brazil, education is considered a citizen's right, provided for in the Federal Constitution (CF, 1988). Understanding coproduction between public schools and students' families in the provision of elementary education is essential, given that a significant share of this population has a socioeconomic profile different from that of the families studied by Pestoff (2006, 2012), who focused on rich countries, and E. Ostrom (1996), who concentrated on poorer countries. Elementary school is a setting that is in keeping with the purposes of the present study, since it involves the participation of students' families as an essential factor in coproduction, for children up to 11 years old who are highly dependent on their family.

The methodology and results of the present study were divided into two parts. The first deals with the objective of identifying forms of coproduction in elementary education by students' families, and the second refers to the aim of verifying the influence of the profile of these family members in the forms of coproduction.

2. THEORETICAL REFERENCE

Coproduction has been studied since the 1970s and 1980s, with a focus on the exploration of the concept, level of importance of users, moment of participation, type of collaboration (individual or collective), among others, highlighting the importance of users in producing a service (V. Ostrom & E. Ostrom, 1977; Parks et al., 1981; Rosentraub & Sharp, 1981; Sharp, 1980; Whitaker, 1980). However, the forms of coproduction and the profile of users and of the service still require further development (Alford, 2015; Osborne & Strokosch, 2013; Pestoff, 2014).

Studies on motives for coproduction, how it occurs, and its effects on service quality and customer satisfaction have been expanded since the 1990s (Alford, 2002, 2009; Bovaird, 2007; Bovaird & Loeffler, 2012; Davis & E. Ostrom, 1991; Edvardsson, Gustafsson, & Kristensson, 2010; Osborne & Strokosch, 2013; Pestoff, 2012, 2014). Empirical production began from the end of the first decade of the 2000s. A study carried out by Löffler et al. (2008) in five European countries (Germany, United Kingdom, France, Czech Republic, and Denmark) addressed public health services, public safety, and environmental care to understand the circumstances in which coproduction occurs. Alford and Yates (2015) examined the behavior of coproduction in public services in Australia.

Coproduction forms have been studied since the genesis of the concept, including studies on education. Pestoff (2006) identified four types of contribution of families to student education: economic (e.g. donations and purchase of materials), political (e.g. participation in school board decisions), pedagogical (e.g. homework), and social (e.g. participation in cultural events at school).

To systematize the schools' need for the contribution of students' families, Davis and E. Ostrom (1991) emphasized essential inputs from users: 1) time and effort of students; 2) time and effort of families; and 3) resources that family members and students use to acquire school materials. The authors also deal with the participation type, similar to that categorized by Pestoff (2006) as political, when they affirm that in public education, families tend to have voting power in school decisions.

The literature on service users' propensity for coproduction has developed from analyses of key variables, such as gender, age, perception of citizens' effectiveness, and perception of government effectiveness, and their effects on propensity for coproduction (Alford & Yates, 2015; Bovaird, Stoker, Jones, Loeffler, & Roncancio, 2015; Pestoff, 2012).

By analyzing a successful case involving coproduction and another with little success, E. Ostrom (1996) described two challenges for citizen engagement: 1) the organization of citizens and the collective fulfillment of pledges; and 2) the governments' capacity for effective coordination between citizens and government agencies. In the study carried out in Nigerian schools, the author concluded that coproduction is discouraged when there is governmental centralization and the citizens do not feel that they "own" the service. Contrary to the logic of Rosentraub and Sharp (1981) that the higher education of the wealthier classes is a positive factor for coproduction, E. Ostrom (1996) points out that, although less educated, disadvantaged social classes are the largest beneficiaries of this system.

Pestoff (2006) studied coproduction in preschool services in eight European countries (Belgium, Bulgaria, England, France, Germany, Italy, Spain, and Switzerland) and concluded that the involvement of families in school activities and the willingness of professionals for coproduction are a challenge in public and private organizations. This result was confirmed in an investigation on early childhood education in Switzerland (Pestoff, 2012).

Alves, M. A. Nogueira, C. M. M. Nogueira, e Resende (2013) investigated the influence of the family on the school performance of children enrolled in elementary school, relating learning with the variables: socioeconomic level of the families attended by the school; type of school (municipal, state, federal, or private); knowledge of the education system; possession of cultural assets; everyday writing practices; rational household routine (family custom of planning and managing expressed by the use of shopping lists, cookbooks, etc.); reading practices; school ambition (expectation that the family has regarding students' learning); and interaction between parents and children. The study confirmed the influence of these aspects on the students' performance, in addition to identifying the importance of social inequalities in the contribution of the family to the learning process.

Bovaird et al. (2015) investigated the coproduction of services with citizens from five European countries: Germany, United Kingdom, France, Czech Republic, and Denmark, and identified key factors related to the propensity of citizens to collaborate with public services, namely: sociodemographic variables (age, gender, educational level, occupation, urban or rural residence); perception of effectiveness (how much citizens believe that their work contributes to the quality of service); and the perception of citizens regarding the effectiveness of the government. The propensity to coproduce in contexts in which the effort of citizens is independent of third parties, as well as the

citizens' desire to collaborate more with public services were emphasized, but there were no factors that would motivate these people to do so.

It is crucial to highlight that the reference to few studies on coproduction in public education, whether in Brazil or other countries, demonstrates that the subject needs further investigation and stresses the lack of bibliographic production in the area. In Brazil, the study by Alves et al. (2013) deserves to be mentioned, because although the authors do not use the term coproduction, it is clear that the core of the examined object is the coproduction of public education in the country. Coproduction of the public good has begun to gain space in Brazilian literature production, without discussing the coproduction of education effectively, though. Some Brazilian studies on coproduction of the public good can be listed, but they do not address the discussion about coproduction of education and, for this reason, the authors of the present study have opted to make some comparisons with the international literature on the subject.

Some recent Brazilian investigations on coproduction of the public good are the following: the study by Age and Schommer (2017), who examined the process of elaboration of a document entitled Certification and Rating for Nutritional Quality of catering services to be applied by a municipal health surveillance service; the investigation by Klein et al. (2012), who evaluated the participation of citizens in the implementation of a housing policy conducted by the Housing Company of the State of Santa Catarina (*Cohab/SC*); the study by Ribeiro, Andion, and Burigo (2015), who analyzed the collective action promoted by the Coordination of Territorial Development (*Codeter*) of Serra Catarinense, aiming to verify whether this action collaborated to mobilize a process of coproduction of the public good in the planning and management of rural development in the territory; the investigation by Silvestre, Catarino, and Araújo (2016), in a collaboration with Portuguese researchers, on the coproduction of public administrative arbitration services in Portugal, in which they supported the thesis that efficiency and effectiveness are greater under the logic of coproduction; the study by Silva, Knoll, and Moretto Neto (2016), who analyzed the coproduction of a public service in solid waste recycling in the city of Florianópolis, identifying a specific model of coproduction, denominated symbolic; among several other recent publications, which could be listed here. The production of studies on the coproduction of public education is still scarce, as previously mentioned.

3. METHODOLOGY

The forms of coproduction in public education have not been studied in the Brazilian context. However, different categories were identified by Pestoff (2006) and Davis and E. Ostrom (1991) in Europe. Given the differences of the subjects (school principals and parents of students) as components of the research context, the authors considered pertinent to use a mixed research strategy, consisting of interviews conducted with school principals (qualitative approach) and the application of questionnaires (quantitative approach) with parents of students. The literature consulted for the present work was based on *a priori* formulation of categories of analysis, not with the hypothesis rejection/non-rejection approach but rather a qualitative interpretation according to the inferential perspective of Bardin (2009), in which the author calls the categorization procedure deductive — one seeks the controlled interpretation (by categories defined *a priori*) in the content analysis, but with space for the emergence of new forms of coproduction through an inductive approach, with *a posteriori* categorization, also predicted by Bardin (2009).

The authors opted to conduct semi-structured interviews using content analysis with orientation based on theoretical saturation, a method that allows to verify the existence of previously identified categories, such as those by Pestoff (2006), as well as the emergence of different exclusive categories of the study. Data collection and analysis are carried out concomitantly, until new observations do not add to what is already known about the phenomenon or category investigated (Bardin, 2009; Thiry-Cherques, 2009).

The sample had 10 school principals from the Federal District. The principals were asked whether students' family members participated in the educational process and what forms of participation existed. For the sampling, 574 schools were divided into regional education departments (the criterion of the education secretariat), and one school was randomly selected from each department, totaling 14 schools. The interviews were scheduled by telephone. Among the people contacted, four chose not to participate in the study. An identification code was created for each interviewee, for example, the first school principal interviewed was referred to as S.P.1 (School Principal 1).

To meet the objective of verifying the influence of the profile of students' families on the coproduction of family members of elementary school students, a survey was carried out based on a questionnaire contemplating sociodemographic profile variables of students' families and ways of coproduction through which family members collaborate. Data was analyzed using descriptive statistics to characterize the sample; analyses of significance using chi-square independence tests and the Spearman correlation coefficient were run to verify the associations between variables; the Wilcoxon test was applied to compare the distribution of the variables, collective coproduction, and individual coproduction; and logistic regression was used to identify the effect of socioeconomic variables on coproduction variables. This method is used in cases in which it is necessary to explain the influence of sociodemographic and family factors on dichotomous variables, such as each of the coproduction forms, for instance whether or not a particular social coproduction is performed. Each variable was dichotomized (0 = no activity, 1 = at least one of the two activities) and considered the dependent variable in logistic regression models.

A total of 440 questionnaires were distributed in family meetings and in the students' school diary, with 269 valid questionnaires sent back from ten schools from the Federal District region.

4. RESULTS AND DISCUSSION

4.1 Forms of coproduction

Interviewee S.P.1 reported forms of family participation within the four categories outlined by Pestoff (2006). The manager also emphasized the importance of another form of coproduction, which he called the "support" and "protection network", in which families deal with the provision of basic care for the student.

"The children who present difficulties, if the family is not with this child with a protection network in the health, medical, psychological areas with teachers, with school reinforcement, the children will not overcome these difficulties" [S.P.1].

The interviewee also presented another action of the family that they understand as essential: bringing teachers the problems that students have outside school, but which impact on learning. It is possible to identify in the concerns of S.P.1 a need for family participation through the provision of basic support for the student. Since the description fits the concept presented by Parks et al. (1981) — the work in which the served individual is inevitably part of the production process and the result of the work is the result of a joint effort — and does not match any classification reported in the study developed in eight countries by Pestoff (2006), another category of coproduction by families was proposed, “coproduction through basic support”. One hypothesis to be verified in future investigations is why this category is not observed in countries with a high socioeconomic level. Interviews carried out with S.P.2 to 10 added no new category.

The theoretical saturation of the categories of coproduction forms was reached in the first interview, since in the subsequent nine interviews no new categories emerged, as shown in Box 1.

BOX 1 **REGISTRATION OF INCLUSION AND CONFIRMATION OF CATEGORIES OF COPRODUCTION FORMS OF PUBLIC EDUCATION**

Interview	Economic	Political	Pedagogical	Social	Basic Support
1	C	C	C	C	I
2		C	C	C	C
3	C	C	C	C	
4		C	C	C	
5		C	C	C	C
6	C	C	C	C	C
7			C	C	C
8		C	C	C	C
9			C	C	
10			C	C	

Source: Elaborated by the authors.

Legend: __Category not identified; C Confirmed category; I Included category

The four categories of coproduction methods proposed by Pestoff (2006) were confirmed. Economic was found in four interviews, Political in eight, and Pedagogical and Social in ten. The Basic Support category was also identified and had explicit coproduction forms in six of the ten interviews, which reveals its relevance to school principals.

Box 2 shows examples of coproduction by relatives for each category.

BOX 2 LIST OF OBSERVED CATEGORIES AND EXAMPLES OF FORMS OF COPRODUCTION IN PUBLIC EDUCATION* PESTOFF (2006)

Categories	Economic*	Political*	Pedagogical*	Social*	Basic Support
Observed example	Cash donation Help with infrastructure Joint promotion of events to raise resources	School Council (resources of public agencies) Parent-teacher association (resources raised in the school) School budget board General meetings Contributions to school planning	Parent-teacher conference Conversation about the school Help with homework Reading at home Pressure on teachers regarding learning Participation in school activities	Participation in events, parties, workshops, games, and school projects	Support: exams, reports, medication Sharing of childrens' problems outside the school Transport Elementary education and teaching of values and citizenship Attending meetings, picking up uniforms, books, etc.

Source: Elaborated by the authors.

To understand these forms of coproduction of education, it is pertinent to observe several perspectives already used in the field literature, such as the level of interaction between those involved — individual (with benefit to the coproducer user), with groups (involves several people and benefits more than one user, and may require coordination), and collective (coordinated and benefiting all potential users of the service) — initially studied by Brudney and England (1983); voluntary or involuntary, as presented by Alford (2009); and optional or unavoidable, as reported by Alford (2015).

Beginning with economic coproduction, it is important to consider that the resources of public education in Brazil must be ensured by the state. The government is responsible for providing school structure, staff, equipment, and maintenance, among other elements. In this context, the interviewed school principals pointed out the imperative need to raise alternative resources, since the resources coming from the public education budget must be planned well in advance and has its destination rigidly defined. In the school routine, however, the demand for resources might not be predictable, either because of demands for timely maintenance or even acquisition of materials for unplanned pedagogical activities. Thus schools seek resources from the agents who have a greater interest in the success of the service — students' families.

Pestoff (2006) explains that the economic contribution surpasses the cash donation and includes time and effort. E. Ostrom (1996) also identified economic coproduction in a study in Nigerian elementary education in which there were several projects undertaken by families to improve the physical structure and sanitary conditions of schools. Examples of economic contributions were cash donations or in the form of materials and services, as well as the promotion of fundraising events, such as bazaars, seasonal festivals, etc. Economic coproduction is essentially individual (Brudney & England, 1983), since each family member donates their own resource, although this occurs in a

group in event promotions. Regarding voluntariness (Alford, 2009), there is no obligation for the family to coproduce.

The participation of family members in school decision-making — political coproduction — is provided for by the Federal Constitution, Law of Guidelines and Bases for Education, and the Fundeb Law (*Lei do Fundeb*), and others. Among the ten school principals interviewed, nine cited participation, eight of whom with examples of boards internal to the school with responsibility to approve finances and mandatory participation of the family. For E. Ostrom (1996), coproduction is discouraged when the government is centralized, which emphasizes the positive impact of political coproduction, since if citizens have a sense of ownership of the service, they tend to collaborate more.

According to Pestoff (2006), political coproduction encompasses the participation of family members in institutional (which impacts on the school) and individual decision-making (which impacts on students). Cases have been reported of groups of family members who have come together to exert pressure on authorities or governments to raise funds for school transportation.

Political coproduction (Pestoff, 2006) has in its essence a collective character, since family members elect their representatives, who in turn give voice to the users in the decisions, as well as the voluntary nature (Alford, 2009), since there is no burden applied to family members who do not participate. From the school's point of view, political coproduction is not optional, since the law determines that school finances must be approved by the executing unit with representation of the school community, under penalty of non-approval of accounts or transfers of resources.

It is noteworthy that, in describing the forms of coproduction of public education, one of the few points of unanimity is that pedagogical coproduction is the most important for the school because of its fundamental and irreplaceable nature, as stated by S.P.8:

“[...] the school alone cannot handle working with the students and offering maximum learning”.

Christophe, Elacqua, Martinez, Araujo and Oliveira (2015) point pedagogical coproduction as a natural phenomenon, as the students' growth and learning is impacted by the relationship with family members. These authors stress that this coproduction form surpasses the home environment by arguing that pedagogical coproduction also occurs in school, given that the family can participate in activities in the classes or complementary teaching activities. Several examples of evidence of this coproduction form were identified (Box 2).

Pedagogical coproduction is predominantly individual. Regarding voluntariness, despite the fact that the federal legislation sets education as a family duty (Federal Constitution and Law of Guidelines and Bases, 1988), only a share of family members coproduce pedagogically. Several school principals cited recurrent families who see the school as

“[...] a day care center, which only serves to care for the child while the parents work, and not a place where the child will learn” (S.P.1).

Although a significant number of families do not fully fulfill this type of coproduction, it is not optional, being imperative for student development.

The third category proposed by Pestoff (2006) — social coproduction of education — emerged in interviews in the form of family participation in events (Box 2) and, as pointed out by S.P.1,

“it is very important for the school atmosphere.”

Helping in the organization of events, sometimes bringing other members of the community such as neighbors, or just being present in the moments of integration promoted by the school, are examples of social coproduction (Pestoff, 2006), which has a collective nature. There is no possibility for the school to provide the benefits of this type of coproduction without family members, so it is irreplaceable.

Analysis of the public education service reveals that the category that presented the lowest degree of substitutability of family participation — the school’s ability to replace that participation with its own effort, such as by providing school infrastructure — was coproduction by basic support, i.e., activities under the responsibility of the family that are premises for education to occur. Examples of this type of coproduction are presented in Box 2. This is individual coproduction because basic support is in the relationship between family and student. Given that it is provided for by law, it is heavily involuntary.

In the study that used the forms of coproduction proposed by Pestoff (2006), no forms of coproduction by basic support were identified. However, it was pointed out by six of the ten school principals interviewed, indicating the need to verify in subsequent studies whether the difference is due to the level of development of the countries.

BOX 3 SUMMARY OF THE PROFILE OF THE FORMS OF COPRODUCTION OF EDUCATION

Form	Voluntariness	Substitutability	Interdependence	Collectivity
Financial	Y	Y	Y	N
Political	Y	N	Y	Y
Social	Y	N	Y	Y
Pedagogical	N	N	N	N
Basic support	N	N	N	N

Source: Elaborated by the authors.

Legend: Y: Yes; N: No

4.2 Relationship between coproduction and family member profile

The questionnaire revealed the sample had 82.4 % of women, aged between 25 and 44 years (82.8 %), with a mean age of 36.9 years. Families with high school (52.9 %) and graduation (20.7 %) prevailed, followed by elementary school (19.2 %) and postgraduation (7.3 %). Regarding occupation, 64.9 % were active workers: 33.6 % were private sector employees, 21 % were self-employed, and 10.3 % were public servants. There were 17.2 % of homemaker, 10.3 % of unemployed people, and 7.6 % of students. Most families lived in the same neighborhood where the school was located (78.4 %).

Regarding family habits, watching television is the most frequent leisure activity, cited by 77.7 % of the participants. Cinema (36.1 %), reading (34.9 %), sports (28.3 %), and theater (5.6 %) followed.

Concerning family practices, 75.8 % of the families carry out financial control and planning of family income and expenses, 71.8 % make a shopping list to go to the supermarket, and 62 % communicate by writing notes, messages, etc. A smaller percentage writes a list of tasks to do to organize and control domestic activities (38.7 %) and undertakes meal planning by listing what will be served (26.2 %).

On average, each family spends 3.9 hours per week reading, and 51.1 % spend up to 2 hours. Only 6.8 % spend no time reading. Regarding the hours of interaction with the student, 55.7 % answered between 0 and 10 hours, with an average weekly interaction time of 15.9 hours. Only 2.1 % did not spend any time interacting with the student. The vast majority (84.9 %) mentioned that they know of some way to support the student.

Participants showed high expectations regarding students' schooling, with 54 % mentioning that they expect their children to finish graduate school, 27 % higher education, and 9.9 % high school (or elementary).

The cross-referencing of family members' schooling with the expectation for students' schooling showed that family members with higher levels of schooling have higher expectations regarding the schooling of students under their responsibility. The expectation depends significantly on the family's schooling (chi-square test: $p < 0.001$) and a positive correlation is observed between both variables ($R = 0.332$, $p < 0.001$). The majority of family members (71.38 %) expect that their children will reach a higher schooling level than their own. This result is represented by the occurrences highlighted in gray in Table 1.

TABLE 1 SCHOOLING OF FAMILY MEMBERS VERSUS EXPECTATION FOR STUDENTS' SCHOOLING

LEVEL OF EDUCATION OF FAMILY MEMBERS	EXPECTATION FOR LEVEL OF EDUCATION			
	Elementary school	High school	Higher education	Graduate school
Elementary school (n = 48)	8 (16.7 %)	5 (10.4 %)	20 (41.7 %)	15 (31.3 %)
High school (n = 137)	10 (7.3 %)	18 (13.1 %)	43 (31.4 %)	66 (48.2 %)
Higher education (n = 54)	4 (7.4 %)	0 (0 %)	8 (14.8 %)	42 (77.8 %)
Graduate school (n = 19)	2 (10.5 %)	0 (0 %)	0 (0 %)	17 (89.5 %)

Source: Data obtained from field research (2016).

Chi-square test: $p < 0.001$; Spearman correlation coefficient: $R = 0.332$ ($p < 0.001$).

According to Alves et al. (2013, p. 586), “social groups that depend more on school success to ascend socially would tend to present higher levels of aspiration and investment regarding their

children's schooling." Thus, the middle class would tend to express greater expectations, whereas economic elites would have lower, since they would have other resources and would thus depend less on education. The more popular classes, represented in the present study, would not create such an expectation for having a lower cultural capital. The results presented in Table 1 indicate a high family expectancy profile, contrary to that pointed out by the authors.

In the present survey, six forms of coproduction (described as assertive in the questionnaire) were treated, representing the four categories proposed by Pestoff (2006), as observed in Table 2.

TABLE 2 QUESTION: WHICH OF THE FOLLOWING ACTIVITIES DO YOU PERFORM VOLUNTARILY TO HELP MAKE EDUCATION BETTER? (N = 269)

COPRODUCTION TYPE (PESTOFF, 2006)	COPRODUCTION FORMS	NUMBER OF EVENTS
ECONOMIC (N = 123, 45 %)	Performing school development activities (working on school renovations, events)	68 (25.3 %)
	Donating financial or other resources (materials, etc.)	81 (30.1 %)
SOCIAL (N = 201, 74.7 %)	Participating in parties and events promoted by the school	201 (74.4 %)
PEDAGOGICAL (N = 230, 76 %)	Assisting in the preparation of homework	205 (76.2 %)
	Asking the school for advice about how to help the child	117 (43.5 %)
POLITICAL (N = 103, 38.3 %)	Attending School Council or Parent-teacher Association meetings	103 (38.3 %)

Source: Data obtained from field research (2016).

Among the most frequent forms, support in the execution of homework (pedagogical coproduction, 76 %) and participation in parties and events promoted by the school (social coproduction, 74.7 %) stand out.

Table 2 shows the types of coproduction (individual and collective) found in the coproduction between family and school. Regarding collective coproduction, 74.7 % cited participation in school parties and events. A total of 38.3 % participate in the School Council or the Parent-teacher Association, and 25.3 % participate in school development activities (working on school renovation, events). In individual coproduction, 76.2 % of family members support the student in the preparation of homework assignments, 43.5 % ask the school for advice about how to help the student, and 30.1 % donate financial or material resources.

To evaluate collective coproduction, individual coproduction, and total coproduction, quantitative variables were created to represent the number of coproduction forms in which the families of students participated. These variables could vary from zero (not citing any coproduction form) to three (in the

cases in which individual and collective coproduction were included). In the case of total coproduction, the variable could range from zero to six to encompass the six coproduction forms.

On average, each participant cites 2.9 out of the six coproduction items presented. Only three (1.1 %) did not mention any, with two (30.1 %) or three (28.3 %) coproduction items being more frequent; 11.2 % did not mention any of the three collective coproduction activities, and the same result was obtained for individual coproduction activities, as shown in Table 3.

TABLE 3 CHARACTERIZATION AND COMPARISON OF COLLECTIVE AND INDIVIDUAL COPRODUCTION BETWEEN FAMILY AND SCHOOL (N = 269)

Quantity of coproduction forms	Total coproduction (N = 269)	Collective coproduction (N = 269)	Individual coproduction (N = 269)
0	3 (1.1 %)	30 (11.2 %)	30 (11.2 %)
1	32 (11.9 %)	133 (49.4 %)	111 (41.3 %)
2	81 (30.1 %)	79 (29.4 %)	92 (34.2 %)
3	76 (28.3 %)	27 (10 %)	36 (13.4 %)
4	45 (16.7 %)	-	-
5	19 (7.1 %)	-	-
6	13 (4.8 %)	-	-
Mean (standard deviation)	2.9 (1.3)	1.4 (0.8)	1.5 (0.9)

Source: Data obtained from field research (2016).
 Wilcoxon test for comparison of collective and individual coproduction: $p = 0.080$.

The Wilcoxon test for the comparison of collective and individual coproduction distribution showed that there were no significant differences between the two variables ($p = 0.080$). Studies conducted in developed countries identified that individual coproduction is more common than the collective because it requires less interaction between people (Alford & Yates, 2015).

The results on the influence of the sociodemographic profile of students' families on coproduction (e.g. donating resources to the school) were obtained from the dichotomization of the qualitative variable (0 = no activity; 1 = at least one of the activities), considered as a dependent variable in logistic regression models. Fisher's exact test was used when it was not possible to estimate the odds ratio (OR) in the logistic regression, as well as the Nagelkerke R^2 estimate, to identify the percentage of explanation of tests through logistic regression.

Logistic regression models were used to study the factors that influence each of the coproduction forms studied. The results are shown in Tables 4, 5, and 6.

TABLE 4 LOGISTIC REGRESSION MODELS WITH SOCIAL AND POLITICAL COPRODUCTION AS DEPENDENT VARIABLES

INDEPENDENT VARIABLE	DEPENDENT VARIABLE			
	SOCIAL COPRODUCTION Participating in school parties and events		POLITICAL COPRODUCTION Participating in the School Board or Parent-teacher Association	
	OR	p	OR	p
SOCIODEMOGRAPHIC VARIABLES				
Gender (Ref.: male)				
Female	0.83	0.629	1.69	0.139
Age	1.01	0.439	1.00	0.870
Level of education (Ref.: elementary school)				
High school	1.10	0.793	0.70	0.277
Higher education/graduate school	1.50	0.340	0.41	0.020
Occupation (Ref.: active worker)				
Homemaker	2.30	0.101	1.75	0.097
Unemployed	0.49	0.104	1.47	0.361
Student	0.29	0.010	0.61	0.362
Lives in the same neighborhood where the school is located (Ref.: no)				
Yes	1.16	0.648	1.36	0.329
FAMILY HABITS				
Leisure activities (Ref.: No)				
Television (Yes)	1.10	0.779	0.91	0.757
Cinema (Yes)	7.07	< 0.001	0.65	0.110
Reading (Yes)	2.55	0.005	1.07	0.791
Sports (Yes)	1.93	0.056	0.67	0.157
Theater (Yes)	5.02	0.123	0.80	0.685
Family practices (Ref.: No)				
Habit of communicating through writing (Yes)	2.86	< 0.001	0.79	0.386
Makes a supermarket shopping list (Yes)	1.22	0.527	1.13	0.667
Carries out meal planning (Yes)	1.30	0.454	3.72	< 0.001
Writes a list of tasks to do (Yes)	1.36	0.327	2.14	0.005
Carries out financial control and planning (Yes)	1.26	0.491	1.62	0.130
Weekly reading hours	1.02	0.532	0.98	0.595
Weekly interaction hours	1.02	0.046	0.99	0.216
Nagelkerke R²	32.0 %		20.6 %	

Source: Data obtained from field research (2016).

OR: odds ratio; p: p value.

Regarding participation in school parties and events, which represents social coproduction, it was observed that occupation, forms of leisure, and hours of interaction with the student have a significant influence. Compared to active workers, parents who are themselves students (OR = 0.29, $p = 0.010$) are less likely to participate in coproduction. This relationship contradicts the finding by Parrado, Van Ryzin, Bovaird & Löffler (2013) that in Denmark, being active in the labor market has a negative relationship with the coproduction of care with the environment. However, the same study identified a positive effect of occupation on coproducing public safety in Germany and the United Kingdom. Since participation in school events involves some financial expense, it would be necessary to deepen the study *a posteriori* to verify if the lower participation of parents who are either unemployed or students themselves is due to their tendency to have a lower income.

Concerning leisure forms, the participants who mentioned cinema (OR = 7.07, $p < 0.001$), reading (OR = 2.55, $p = 0.005$), and sports (OR = 1.93, $p = 0.056$) were more likely to participate in school parties and events compared to those who did not cite these activities. The habit of going to the cinema stood out strongly, and a family with this custom had seven times more chances to participate in school social events. The set of variables explains 32 % of the family members' participation in this type of coproduction.

Regarding participation in the School Council or Parent-teacher Association, which play a role in political coproduction, the chance of coproduction decreases with increasing schooling. The effect was more significant for family members with a degree in a graduation or postgraduation course. These people are 59 % less likely (OR = 0.41, $p = 0.020$) to participate than parents who completed elementary school only. This result contradicts the findings by Parrado et al. (2013), who found a positive relationship between schooling and coproduction practices of a more advisory profile, consistent with political coproduction. Family members who plan meals (OR = 3.72, $p < 0.001$) and write task lists (OR = 2.14, $p = 0.005$) are more likely to participate in the School Council or the Parent-teacher Association. The set of variables explains 20.6 % of the family members' participation in this type of coproduction.

Table 5 presents the results of the study of the influence of sociodemographic and family factors on pedagogical coproduction and each of its forms. The variables were dichotomized (0 = no activity; 1 = at least one of the two activities) and considered a dependent variable in logistic regression models.

The results show that parents who have the family practices of making shopping lists (OR = 2.04, $p = 0.055$) and carrying out meal planning (OR = 4.21, $p = 0.021$) are more likely to coproduce pedagogically.

The support in the elaboration of homework was significantly influenced by the meal planning habit only (OR = 2.53; $p = 0.024$), and family members who had this activity incorporated in the household routine were 2.53 times more likely to support the student in homework. In the case of theater, it is observed that 100 % of the family members who cite this option as a leisure form support the elaboration of homework and 75 % of the those who do not mention theater support homework. Because it was not possible to estimate the ORs because of the zero frequency in one of the cells, Fisher's exact test was applied, which was significant ($p = 0.026$), i.e., family members who refer to theater as a form of leisure are more likely to support the elaboration of homework.

TABLE 5 LOGISTIC REGRESSION MODELS WITH EACH OF THE ITEMS OF PEDAGOGICAL COPRODUCTION AS DEPENDENT VARIABLES

INDEPENDENT VARIABLES	DEPENDENT VARIABLES					
	PEDAGOGICAL COPRODUCTION					
	Pedagogical coproduction		Supporting the execution of homework		Asking the school for advice on how to help the child	
	OR	p	OR	p	OR	p
SOCIODEMOGRAPHIC VARIABLES						
Gender (Ref.: male)						
Female	1.50	0.335	1.11	0.786	1.40	0.313
Age	1.00	0.919	0.98	0.179	1.02	0.139
Level of education (Ref.: elementary school)						
High school	0.68	0.436	0.96	0.911	0.97	0.932
Higher education/graduation school	0.86	0.783	1.62	0.277	1.27	0.516
Occupation (Ref.: active worker)						
Homemaker	1.19	0.742	0.97	0.947	1.36	0.364
Unemployed	0.52	0.206	0.56	0.191	0.55	0.178
Student	0.45	0.153	0.52	0.190	1.06	0.900
Lives in the same neighborhood where the school is located (Ref.: No)						
Yes	0.62	0.314	0.80	0.532	1.02	0.946
FAMILY HABITS						
Leisure activities (Ref.: No)						
Television (Yes)	1.24	0.589	0.97	0.925	0.85	0.574
Cinema (Yes)	1.15	0.702	1.10	0.748	0.76	0.284
Reading (Yes)	1.25	0.555	0.86	0.623	1.96	0.009
Sports (Yes)	0.58	0.129	0.83	0.542	0.92	0.773
Theater (Yes)	(1)	(1)	(1)	(1)	1.15	0.799
Family practices (Ref.: No)						
Communicates through writing (Yes)	1.16	0.677	1.14	0.670	1.39	0.208
Makes a supermarket shopping list (Yes)	2.04	0.055	1.42	0.279	1.89	0.031
Carries out meal planning (Yes)	4.21	0.021	2.53	0.024	1.91	0.026
Writes a list of tasks to do (Yes)	1.18	0.660	1.15	0.655	1.64	0.059
Carries out financial control and planning (Yes)	1.99	0.084	1.69	0.117	1.98	0.029
Weekly reading hours	0.98	0.699	0.99	0.788	1.03	0.260
Weekly interaction hours	0.99	0.486	1.00	0.963	0.99	0.160
Nagelkerke's R²	R² = 14.4 %		16.6 %		20.3 %	

Source: Empirical evidence obtained in field research (2016).

OR: odds ratio; p: p-value. (1) It was not possible to estimate the ORs as a consequence of the zero frequency: 100 % of the family members who refer theater, support the tasks and 75 % of the relatives who do not refer theater, support the tasks (Fisher's exact test: p = 0.026).

Family members who make shopping lists (OR = 1.89, p = 0.031), those who plan meals (OR = 1.91, p = 0.026), those who write a list of tasks (OR = 1.64, p = 0.059), and those who carry out control and financial planning (OR = 1.98, p = 0.029) are more likely to ask for advice from the school about how to help their child than those who do not. None of the other variables significantly influences this form of participation. These findings are consistent with the results obtained by Alves et al. (2013), according to whom domestic rational order (the cited habits) positively influences learning. The authors studied the impact of rational household order on learning rather than coproduction, and explain that the latter affects learning through the influence of the family on the student.

The independent variables considered in Table 5 explain 14.4 % of pedagogical coproduction, 16.5 % of support in the elaboration of homework assignments, and 20.3 % of the advice requests on how to assist the student.

Table 6 presents the results of the examination of the influence of sociodemographic and family factors on economic coproduction (school development activities, donation of financial resources, etc.). Each of the variables was dichotomized (0 = no activity; 1 = at least one of the two activities) and considered a dependent variable in logistic regression models.

TABLE 6 LOGISTIC REGRESSION MODELS WITH EACH ITEM OF ECONOMIC COPRODUCTION AS DEPENDENT VARIABLES

INDEPENDENT COPRODUCTION	DEPENDENT VARIABLES					
	ECONOMIC COPRODUCTION					
	Economic coproduction		Participating in school development activities		Donating financial or other resources	
	OR	p	OR	p	OR	p
SOCIODEMOGRAPHIC VARIABLES						
Gender (Ref.: male)						
Female	0.59	0.103	0.81	0.562	0.69	0.278
Age	1.02	0.316	1.02	0.177	1.03	0.050
Level of education (Ref.: elementary school)						
High school	1.95	0.055	1.30	0.505	2.30	0.052
Higher education/graduation school	2.58	0.014	1.25	0.610	3.87	0.003
Occupation (Ref.: active worker)						
Homemaker	1.08	0.814	1.14	0.724	1.17	0.667
Unemployed	1.55	0.296	1.57	0.310	1.17	0.727
Student	0.67	0.410	0.56	0.366	0.58	0.356

Continue

INDEPENDENT COPRODUCTION	DEPENDENT VARIABLES					
	ECONOMIC COPRODUCTION					
	Economic coproduction		Participating in school development activities		Donating financial or other resources	
	OR	p	OR	p	OR	p
Lives in the same neighborhood where the school is located (Ref.: No)						
Yes	1.05	0.877	2.11	0.057	0.70	0.255
FAMILY HABITS						
Leisure activities (Ref.: No)						
Television (Yes)	0.95	0.868	1.14	0.694	0.75	0.350
Cinema (Yes)	1.19	0.500	0.88	0.657	1.67	0.061
Reading (Yes)	1.94	0.011	1.56	0.125	2.42	0.001
Sports (Yes)	1.10	0.734	0.98	0.947	1.30	0.358
Theater (Yes)	4.68	0.020	3.70	0.015	2.83	0.052
Family practices (Ref.: No)						
Communicates through writing (Yes)	1.21	0.455	1.44	0.228	1.30	0.356
Makes a supermarket shopping list (Yes)	2.07	0.013	1.80	0.092	2.76	0.004
Carries out meal planning (Yes)	1.82	0.040	1.84	0.052	2.97	< 0.001
Writes a list of tasks to do (Yes)	1.14	0.625	1.09	0.763	1.74	0.049
Carries out financial control and planning (Yes)	2.33	0.008	1.41	0.344	2.99	0.005
Weekly reading hours	1.03	0.334	1.01	0.824	1.05	0.134
Weekly interaction hours	0.99	0.380	0.99	0.331	1.00	0.960
Nagelkerke's R²	R² = 18.3 %		29.5 %		31.1 %	

Source: Empirical evidence obtained in field research (2016).

OR: odds ratio; p: p value. (1) It is not possible to estimate the ORs as a consequence of the zero frequency: 100 % of the relatives who refer theater, support the tasks and 75 % of the relatives who do not refer theater, support the tasks (Fisher's exact test: p = 0.026).

The chances of economic coproduction increase with an increased level of education (family member with graduation/post-graduation: OR = 2.58, p = 0.014). Also in this case, family members who make a shopping list (OR = 2.07, p = 0.013) and who plan meals (OR = 1.82, p = 0.040) are more likely to participate in economic coproduction. The chances for economic coproduction to occur are also higher among family members who cite theater as a form of leisure (OR = 4.68, p = 0.020) and those who perform financial planning and control (OR = 2.33, p = 0.008).

Family members living in the same neighborhood in which the school is located (OR = 2.11, p = 0.057), those who mention going to the theater as a form of leisure (OR = 3.70, p = 0.015), and those who plan meals (OR = 1.84; p = 0.052) are more likely to engage in school development activities.

The probability of donating financial or other resources increases with increasing age (OR = 1.03, p = 0.050) and educational level: family members who completed high school and

those with a graduate or postgraduate degree are 2.3 times (OR = 2.30, $p = 0.052$) and 3.87 times (OR = 3.87, $p = 0.003$), respectively, more likely to donate financial or other resources compared to parents who completed elementary school. Future studies should examine whether there is a negative correlation between high schooling and political coproduction, as well as a positive correlation between high schooling and economic coproduction. This is because analysis of the data exhibited in Tables 4 and 6 revealed that subjects with undergraduate or graduate degrees have low political participation but a significant economic contribution to the school their children attend.

Alford and Yates (2015) did not find a significant difference between the level of education of the user of the service and coproduction. However, they identified a relationship between occupation and coproduction, a result similar to that reported by Parrado et al. (2013), who concluded that the level of education has a weak and inconsistent relationship with coproduction behaviors of various sectors and countries, and that people with a degree are in some way less likely to coproduce. The authors suggest that the level of education influences more the users' "advisory" participation in the service rather than the provision of the service itself, whereas in public education, political coproduction (which resembles advisory participation) was negatively influenced by the fact that the family member had a higher level of education. In the Brazilian case, advisory participation (political coproduction) is low among people with a high level of education. The authors reinforce the need to expand future studies to verify whether cultural, geographic, or other factors explain the discrepancy between Brazilian and European results.

5. CONCLUSIONS

The objectives of the present study were to identify the coproduction forms of the Brazilian public elementary school and verify the influence of the students' family profile on the coproduction forms.

The present investigation revealed a type of coproduction which had not emerged in the studies carried out by Pestoff (2006) in Europe and E. Ostrom (1996) in Nigeria. It was called coproduction by basic support, in which families must ensure the necessary care for students to have a comprehensive learning, which encompasses varied aspects such as health and nutrition. It was also observed that coproduction through basic support and pedagogical coproduction play a central role for school management and are characterized as not being voluntary or substitutable. Regarding the influence of the students' family profile on coproduction forms, it was verified that most parents (71.38 %) expect that their children will have a higher level of education than their own level. It was also shown that schooling and the set of family habits and practices, called rational household order by Alves et al. (2013), are factors that satisfactorily explain the following forms of coproduction: pedagogical, social, political, and economic.

The present study contributes to the understanding of the coproduction of public services in the context of the research on Brazilian public education, the same service examined by Pestoff (2006) in Europe and E. Ostrom (1996) in Nigeria, allowing to understand how it can differ according to the level of economic development of the country. Thus, the present investigation opens space for research on the coproduction of public services in Brazil in similar contexts, to deepen the discussion and understanding about public education, and explore different services. It also has as a practical

implication of providing formulators and principals of public policies with ways to engage citizens in efforts to coproduce public services, mostly in the education area.

Data collection with students' families was limited to the questionnaire answered by the research subject, which excluded illiterate parents, and was carried out through the use of the students' school diary or at parent-teacher meetings, which prevented the participation of less coproducing family members. In future studies, it is necessary to design in-depth interviews for various profiles of family members, including those with a low level of education and income who are willing to coproduce, and those who do not coproduce at all. In this way, the investigation will cover illiterate family members.

For the future, it is recommended that more studies on the coproduction of public services be carried out in Brazil, specifically in the scope of essential and constitutionally guaranteed public services such as those education-related, since the number of studies is still negligible in the face of the research possibilities in Brazil and Latin America. It became clear in the present investigation that the current literature of reference is still predominantly European regarding studies on public education.

REFERENCES

- Age, L. M., & Schommer, P. C. (2017). Coprodução de serviço de vigilância sanitária: certificação e classificação de restaurantes. *Revista de Administração Contemporânea*, 21(3), 413-434.
- Alford, J. (2002). Why do public-sector clients coproduce? Toward a contingency theory. *Administration & Society*, 34(1), 32-56.
- Alford, J. (2009). *Engaging public sector clients. From service delivery to co-production*. New York, NY: Palgrave Macmillan.
- Alford, J. (2015). The multiple facets of co-production: building on the work of Elinor Ostrom. *Public Management Review*, 16(3), 299-316.
- Alford, J., & Yates, S. (2015). Co-production of public services in Australia: the roles of government organisations and co-producers. *Australian Journal of Public Administration*, 75(2), 159-175.
- Alves, M. T. G., Nogueira, M. A., Nogueira, C. M. M., & Resende, T. F. (2013). Fatores familiares e desempenho escolar: uma abordagem multidimensional. *Dados*, 56(3), 571-603.
- Bardin, L. (2009). *Análise de conteúdo*. Lisboa, Portugal: Ed. 70.
- Bovaird, T. (2007). Beyond engagement and participation: user and community coproduction of public services. *Public Administration Review*, 67(5), 846-860.
- Bovaird, T., & Loeffler, E. (2012). From engagement to co-production: the contribution of users and communities to outcomes and public value. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, 23(4), 1119-1138.
- Bovaird, T., Stoker, G., Jones, T., Loeffler, E., & Roncancio, M. P. (2015). Activating collective co-production of public services: influencing citizens to participate in complex governance mechanisms in the UK. *International Review of Administrative Sciences*, 82(1), 47-68.
- Brudney, J. L., & England, R. E. (1983). Toward a definition of the coproduction concept. *Public Administration Review*, 43(1), 59-65.
- Christophe, M., Elacqua, G., Martinez, M., & Araujo e Oliveira, J. B. (2015). *Educação baseada em evidências: como saber o que funciona na educação*. Brasília, DF: Instituto Alfa e Beto.
- Constituição da República Federativa do Brasil, de 5 de outubro de 1988*. (1988). Brasília, DF.
- Davis, G., & Ostrom, E. (1991). A public economy approach to education: choice and co-production. *International Political Science Review*, 12(4), 313-335.
- Edvardsson, B., Gustafsson, A., & Kristensson, P. (2010). Customer integration in service innovation. In F. Gallouj, & F. Djellal (Eds.), *The handbook of innovation and services: a multi-disciplinary perspective* (pp. 301-317). Cheltenham, England: Springer.
- Klein, V. H., Jr., Salm, J. F., Heidemann, F. G., & Menegasso, M. E. (2012). Participação e coprodução em política habitacional: estudo de um programa de construção de moradias em SC. *Revista de Administração Pública*, 46(1), 25-48.
- Löffler, E., Parrado, S., Bovaird, T., & Van Ryzin, G. (2008). "If you want to go fast, walk alone. If you want to go far, walk together": citizens and the co-production of public services (Report). Paris, France: Ministry of Budget, Public Finance and Public Services.
- Osborne, S. P., & Strokosch, K. (2013). It takes two to tango? Understanding the co-production of public services by integrating the services management and public administration perspectives. *British Journal of Management*, 24(Suppl. 1), S31-S47.
- Ostrom, E. (1996). Crossing the great divide: coproduction, synergy, and development. *World Development*, 24(6), 1073-1087.
- Ostrom, V., & Ostrom, E. (1977). Public goods and public choices. In E. Savas (Ed.), *Alternatives for delivering public services: toward improved performance* (pp. 7-49). Boulder, CO: Westview.
- Parks, R., Baker, P. C., Kiser, L., Oakerson, R., Ostrom, E., Ostrom, V. ... Wilson, R. (1981). Consumers as coproducers of public services: some economic and institutional considerations. *Policy Studies Journal*, 9(7), 1001-1011.
- Parrado, S., Van Ryzin, G. G., Bovaird, T., & Löffler, E. (2013). Correlates of co-production: evidence from a five-nation survey of citizens. *International Public Management Journal*, 16(1), 85-112.

- Pestoff, V. (2006). Citizens and co-production of welfare services: childcare in eight European countries. *Public Management Review*, 8(4), 503-519.
- Pestoff, V. (2012). New public governance, co-production and third sector social services in Europe: crowding in and crowding out. In V. Pestoff, T. Brandsen, & B. Verschuere (Eds.), *New public governance, the third sector and co-production* (pp. 361-380). London, England: Routledge.
- Pestoff, V. (2014). Collective action and the sustainability of co-production. *Public Management Review*, 16(3), 383-401.
- Ribeiro, A. C., Andion, C., & Burigo, F. (2015). Ação coletiva e coprodução para o desenvolvimento rural: um estudo de caso do Colegiado de Desenvolvimento Territorial da Serra Catarinense. *Revista de Administração Pública*, 49(1), 119-140.
- Rosentraub, M., & Sharp, E. B. (1981). Consumers as producers of social services: coproduction and the level of social services. *Southern Review of Public Administration*, 4(4), 502-539.
- Sharp, E. B. (1980). Toward a new understanding of urban services and citizen participation: the coproduction concept. *Midwest Review of Public Administration*, 14(2), 105-118.
- Silva, F. A., Knoll, A., Moretto, L., Neto. (2016). A coprodução de serviço público na reciclagem de resíduos sólidos: estudo no município de Florianópolis. *Revista de Administração, Contabilidade e Economia da Fundace*, 7(3), 64-76.
- Silvestre, H. C., Catarino, J. R., & Araújo, J. F. F. E. (2016). Evidence of co-production in public service provision: the case of the administrative arbitration centre in Portugal. *Revista de Administração (São Paulo)*, 51(4), 355-365.
- Thiry-Cherques, H. R. (2009). Saturação em pesquisa qualitativa: estimativa empírica de dimensionamento. *PMKT: Revista Brasileira de Pesquisas de Marketing, Opinião e Mídia*, 3, 20-27.
- Whitaker, G. P. (1980). Coproduction: citizen participation in service delivery. *Public Administration Review*, 40(2), 240-246.

Guilherme Ferreira Soares



<https://orcid.org/0000-0002-0733-6311>

Master of business administration of the business administration graduate program of the University of Brasília.
E-mail: guilhermefsoares@gmail.com

Josivania Silva Farias



<https://orcid.org/0000-0002-1421-3280>

PhD in business administration from the University of Brasília; Associate professor at the University of Brasília and the business administration graduate program. E-mail: josivania@unb.br