

# **To be or not to be a teacher of Basic Education in Brazil? The role of expected salary and other factors in the occupational choice of students in teacher training programs**

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**Abstract:** In developed and developing countries, there are frequent shortages of teachers – both in a quantitative perspective (shortage in certain subjects or locations) and in a qualitative one (not every teacher has the means to perform his or her tasks adequately). What are the main factors attracting or repelling potential teachers in Brazil? What role is carried out by short and medium term salary expectations? What is the profile of those who want to become a teacher? This paper contributes to the literature by providing elements of response to these questions through the estimation of occupational choice models. Data were collected in a survey with a representative sample of undergraduate students from various fields leading to the teacher profession. Results show that the future teacher has a disadvantaged socioeconomic profile, is risk-averse and generally is not among the best students. Women and those who live in the countryside are more prone to become a teacher at least in some of the estimated models, and the same is true for those who are enrolled in a private institution and those who do not study natural sciences. For some subsamples, having attended teacher training courses at the secondary school and taking part in activities at the university (such as teaching assistanceship) might mitigate the desire to give up the profession. Even controlling for well-known major determinants, including proxies for vocation, wage expectations in the short and medium term prove to be significant.

Key words: teacher occupational choice, teacher labor supply, teacher wage, teacher profession desirability, teacher shortage, underqualified teachers.

JEL classification: J25 (occupational choice)

## 1. Introduction<sup>1</sup>

Education is important because of its individual and collective benefits; for its economic and social advantages; for its present and future impacts. Whatever the school of economic thought, it is difficult to reconcile the view of a developed country with an educational system of poor quality (Sen, 1999, Hanushek and Wößmann, 2008, Barr, 2012).

International studies make it clear that it will not be possible to provide a good education for our children if there are not enough teachers; and good teachers in particular. Countries with successful education systems recruit their future teachers among the best upper-secondary students, through competitive selection processes and offer them attractive and challenging career structures (Auguste et al., 2010, Barber and Mourshed 2007; Darling-Hammond, 2000). In an analysis of the Finnish educational system, known for excellent results in international proficiency tests, Salhberg (2011) highlights the concern with the recruitment to teacher training programs of students with high performance in high school.

Ideally, a large number of good students from such level of education would consider the possibility of becoming Basic Education teachers in the future, choosing to study Pedagogy or courses which typically conduce to teaching, such as Portuguese, Physics or Geography. Throughout their college studies, many would gradually reinforce their initial choice, choosing to actually enter the job market as teachers. Finally, once in the labor market, few would consider the possibility of leaving the occupation.

Reality is often different from such ideal. Even in developed countries, there is a recurrent lack of teacher supply. In a large literature review on the subject, Dolton (2006) mentions a UNESCO report of 1967 indicating a shortage of secondary school teachers in 83 out of 91 countries. Half a century later, the problem persists, drawing the attention of academia and policymakers. More recently, it has been added to the list of central concerns the qualitative shortage (Gilpin and Kaganovich, 2012, Hatsor, 2012, Chevalier et al., 2007, Dolton, 2006, Hanushek and Pace, 1995). If the availability of teachers in a satisfactory quantity is a necessary condition to provide an adequate service of education, it may not be sufficient if the professionals do not master the knowledge and do not have the necessary skills and the appropriate working conditions to teach.

The quantitative and qualitative problems merge in the so-called "hidden scarcity" (Ingersoll, 1999; OECD, 2006; Rezende Pinto, 2014). A mere comparison of the aggregate number of active teachers with the number of students they serve may mask shortcomings in certain locations or areas of expertise - in remote rural areas or in disciplines with more work alternatives outside schools, such as Chemistry, for example. Given the absence of specialists, a palliative might consist of allocating professionals from other fields, or teachers without the required training, potentially reducing the quality of education (UNICEF, 2012).

As in other Latin American countries, in Brazil the teaching career suffers from problems that affect its image and possibly drive good teachers away from the labor market (Vaillant, 2006). They also limit its attractiveness among young people, especially those with certain characteristics, such as those of favored social classes or those who have good school performance (Leme, 2012, Gatti et al., 2010,

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<sup>1</sup> This study has been carried out with technical and financial support from the Lemann Foundation and the Itaú BBA bank through the grant "How to ensure that all Brazilian students have a good teacher every day in the classroom?". All opinions, results, conclusions and recommendations expressed in this material are the responsibility of the authors and do not necessarily reflect the views of the Lemann Foundation and the Itaú BBA bank.

Louzano et al., 2010; Vargas, 2010; Gatti and Barreto, 2009). A perception of unsatisfactory compensation and of poor working conditions, as well as the low social prestige of the profession tend to repel people who in a more favorable situation would seriously aim at becoming teachers (FCC, 2009; Tartuce et al., 2010; Louzano et al., 2010; Vargas, 2008).

In contrast, vocation (Heyes, 2005), and advantages such as flexibility of working hours, job stability, long vacations or low demands for the practice of the profession (Barbosa Filho et al., 2009) might be attractive factors. Finally, because it is a predominantly female occupation, decisions regarding labor market insertion are strongly influenced by family choices, such as those involving marriage and fertility.

What is the profile of those who want to become a Basic Education teacher in Brazil? What factors attract or repel potential teachers? In particular, what is the role of short- and medium-term wage expectations in this decision? Do men and women decide similarly? Are there differences between fields or according to the place of residence? What measures could be taken to increase the attractiveness of the occupation? Such questions have guided this study, which contributes to the literature by investigating in a quantitative way the process of occupational choice of potential future teachers in a developing country.

Based on a survey applied in the year 2015, we estimate the probability of following the teaching career of a sample of students enrolled in the two final years of face-to-face courses - Pedagogy and seven other course that train future teachers: History, Geography, Portuguese, Mathematics, Chemistry, Physics and Biology. From this estimation, we infer some of the determinants of occupational choice.

Extremely rich, the database used in this article has not yet been used for an analysis like the one presented here. It consists of about two thousand observations, making up an expanded sample of more than 300 thousand students. The sample has national representativeness, for the five Brazilian macro regions and for three fields - Pedagogy; what we call "Basic Subjects" (Portuguese, Mathematics, History and Geography) and what we call "Sciences" (Biology, Chemistry and Physics). The questionnaire contains a wide range of questions that cover different aspects that influence occupational choice, such as salary expectations, attitude towards risk, socioeconomic variables, vocation and experience, place of residence, and characteristics and practices of the institution in which the student is enrolled.

The results confirm previous findings, such as that the profession is feminized and that the future teacher has a disadvantaged socioeconomic profile (Louzano et al., 2010), which is also observed in some developed countries (Chevalier et al., 2007). They suggest the confirmation of hypotheses raised in the national literature, that the prospective teacher is risk-averse and not among the best students (except in the area of Sciences). In some of the estimated models, living outside states capitals and not studying Sciences increase the probability of wanting to become a teacher – signs of future hidden scarcity. In some regressions, studying in a private institution, having previously attended teacher-training courses at a secondary-school level, and having participated in academic activities such as teaching assistanceship, mitigate the desire to give up the profession. Even controlling for well-known important effects, including proxies for vocation, short- and medium- term salary expectations are significant. The main results – especially those referring to wage variables – also appear in regressions applied to subgroups, according to sex or fields, and are robust to different specifications.

The article has a classic structure: a synthesis of the literature is followed by data and methodology presentations, then come results, discussion and conclusions.

## 2. Literature<sup>2</sup>

As a foreword to a long review of literature on teacher supply, Dolton (2006) presents a very simple framework of supply and demand, in which three points stand out: (i) the importance of the demand for teachers, which depends on retentions, class size, length of school day, length of compulsory schooling, and demographic patterns; (ii) the crossing between the supply and demand curves would define an equilibrium wage, which, however, is only latent, since usually the largest employers are governments subject to stringent fiscal constraints, which set low wages, partially compensated, for example, by job stability; (iii) such wages rigidity would give scope, within the same country or region, for differences in the balance between demand and supply of teachers' jobs. These simple conceptual tools imply that reducing teacher supply shortages would require: (a) either acting on the demand-side, or (b) raising wages, or yet (c) making the profession more attractive in its non-pecuniary aspects.

### 2.1. Theoretical models

Two points permeate the literature on occupational choice models: (i) the assumption that agents compare the present value of costs and benefits of teacher occupation with that of alternative occupations; (ii) the crucial role of compensation in calculating benefits. Zabalza et al. (1979) and Zarkin (1985) postulate the following factors would be determinants of entry, exit, and re-entry into employment: the starting salary, career development (at a deterministic known rate), and the level of unemployment – always in relation to alternative occupations. Because it involves an intertemporal decision, in addition to the discount rate, the duration of the training period (costs) and the period during which compensation would be paid (wages during working years plus retirement income) should also be ingredients of the model. Equations 1 and 2 summarize these elements.

$$E^i = f(V_P^i, V_A^i) \quad (\text{Equation 1})$$

$$V_S^i = f(W_{1S}, F_S, D_S, g_S, r^i, k^i) \quad (\text{Equation 2})^3$$

where:  $E^i$  is the occupational choice of individual  $i$ , which depends on the present value of the teacher occupation ( $V_P^i$ ) and of alternative occupations ( $V_A^i$ ). The present value, in turn, depends on the initial wages ( $W_{1S}$ ) in each sector,  $S = P, A$ ; of the time required for training in each sector ( $F_S$ ); of unemployment in each sector ( $D_S$ ); of the wage growth rate in each sector ( $g_S$ ); of the individual intertemporal discount rate ( $r^i$ ) and of the relevant time horizon for each person ( $k^i$ ).

Dolton and Chung (2004) calculated net present values of teacher occupation - that is, ( $V_P^i - V_A^i$ ) in the notation adopted here - separately for British women and men, assuming plausible values for the parameters that are not observable, such as some of those featured in Equation 2 above. While it is clear that for women, it would be advantageous to choose the teacher profession, for men, at least from a strictly financial point of view, it would not be. Despite a negative net present value, there were men who chose the profession, a sign that some elements were missing in the analysis.

It is reasonable to assume that the values attributed to costs and benefits vary from person to person, and that this does not derive only from possible inter-individual variations in the relevant time horizon ( $k$ )

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<sup>2</sup> This section is mainly based on the works of Santiago (2002), Dolton (2006) and Britto et al. (2015).

<sup>3</sup> Equations 1-3 were adapted to our purposes, and with simplified notation, from what is presented in Dolton (2006: 1107).

or the discount rate ( $r$ ). Based on the theory of compensatory differentials, it is possible to use the notion of *effective remuneration* ( $\omega$ ), which would consider the monetary wage as defined above ( $W$ ), but adjusting it to nonmonetary advantages and disadvantages at any moment of time, via a parameter ( $\mu$ ), interpretable as a propensity (or aversion) to teaching, as it assumes values larger (or smaller) than 1.

$$\omega_{tP}^i = W_{tP} * \mu_t^i \quad (\text{Equation 3})$$

This propensity or aversion to teaching would be variable between individuals and over time (hence the superscript  $i$  and the subscript  $t$ ), which makes the framework of analysis compatible with different degrees of vocation for teaching, as well as with studies of withdrawal or re-entry into the occupation after experiences in the labor market. Together, all elements of equations 1-3 will be reflected in a distribution of reservation wages, which will determine the curve of aggregate teacher supply.

In a recent contribution, Watt et al. (2012) report the validation of an instrument called FIT-CHOICE (*Factors Influencing Teaching Choice*) whose objective was to "evaluate the main motivations of teachers to teach" and which was applied to students of teacher training courses in Australia, Germany, Norway and the USA. Were taken into account aspects such as: the influence of family and friends on occupational choice; experiences of teaching or learning; self-perception of skills; perceived costs (such as career requirements) and benefits (such as salaries and prestige); individual preferences; views on the teacher's contribution to society.

Occupational choice might also be affected by the perception of working conditions. Not only the physical infrastructure of schools, but also the availability of human resources to support teaching (managers, colleagues, assistants), class size, teaching load, out-of-field teaching, the availability of training opportunities, violence in schools etc. (Dolton, 2006).

It is plausible to assume that uncertainty is low in relation to some elements, such as the training time in each sector ( $F_s$ ); for other factors, it may be higher. At a relatively low cost, people can inquire about starting salaries ( $W_{1s}$ ) or about job opportunities in both sectors (some proxy of  $D_{1s}$ ). However, expectations about wage growth over the coming decades or about unemployment rates in teaching and alternative occupations in the medium- and long-term are less certain. More sophisticated models do not assume anymore that all variables are deterministic, but that they are set stochastically, with associated probability distributions (Chevalier et al., 2007; Ballou and Podgursky, 1997; Dolton, 1990; Zarkin, 1985; Zabalza et al., 1979).

Other models try to explain simultaneously the choice between teacher occupation, alternative careers or domestic production (Flyer and Rosen, 1997). This perspective is relevant, among other reasons, because of the high proportion of women among teachers, who are generally more likely to have to make decisions about participation in the labor market due to maternity and childcare. The issue is particularly important in the education sector because teacher employment offers some flexibility in working hours - for example, through part-time contracts. In addition, the occupation is compatible with an early and long-term entry into the labor market, compared to related occupations. Finally, the wage penalty seems to be smaller for periods of absence from the labor market (Flyer and Rosen, 1997; Dolton, 2006). For all these reasons, it is expected that the labor supply of men and women will respond differently to fluctuations in wages and other conditioning factors mentioned above. Perhaps even more than in the study of other subjects related to the labor market in general, the investigation of the occupational choice of teachers demands separate analyses of the behavior of men and women.

## 2.2. International evidence

The theoretical studies mentioned above raise various factors – especially wages – that possibly affect the occupational choice of potential future teachers. Numerous challenges come up in conducting quantitative studies based on these models, especially the lack of longitudinal data; or even in cross-sections, missing information on several theoretically important variables. With these caveats, the literature provides evidence of different flows in the labor market of teachers, mostly in the United States and the United Kingdom, including some linked to entering teaching, the subject of this article.

In some studies, the central variable is the initial teacher salary relative to that of comparable professionals; in others, it is an estimate of earnings over the course of a career. The decision to enroll in teacher-training programs has been studied, as well as the decision to become a teacher (or still to stay or re-enter), or both, when the data so permits. Usually separate regressions are run for men and women.

The most commonly used methods are those of a binary dependent variable, in one stage when estimating occupational choice alone (Dolton, 1990; Hanushek and Pace, 1995; Dolton and Kidd, 1994). Or in various stages, in models with longitudinal data that allow estimating wage equations taking into account, in addition to the occupational choice itself, decisions of participation, working hours and fertility (Gilpin, 2011, Chevalier et al., 2007; Dolton and Mavromaras, 1994).

The most regularly found and highlighted result is the positive relationship between relative wages (initial and along the career) with entry into the occupation, more intensely for men (Manski, 1987; Dolton, 1990; Dolton and Makepeace, 1993; Dolton, 2006; Chevalier et al, 2007).

High salaries attract more candidates to teacher-training programs, lead more graduates to choose the occupation, and also help retain active teachers, but they do not necessarily raise the average ability of the teacher body as measured by standardized test scores (Manski, 1987; Hanushek and Pace, 1995; Dolton, 2006). This means that, although related, the two forms of scarcity – quantitative and qualitative – deserve different approaches.

Unemployment rates of teachers and in other careers, as well as their oscillations over time, also affect choice, suggesting that the attitude towards risk is important (Zabalza, 1979a and 1979b, Dolton et al., 2003; Chevalier et al. ., 2007). Teachers with more alternatives outside teaching are more likely to leave the profession, and the same applies to more qualified teachers, to those from scientific fields, and to those from favored social backgrounds.<sup>4</sup> Dolton (2006) regrets the lack of rigorous studies about the perception of working conditions on occupational choice, retention and leaving teaching. He also notices the lack of studies on the structure of the career as a whole - beyond, therefore, the teacher's initial salary and its evolution. For example, can high salaries for principals or good opportunities in administrative positions at schools or education authorities have an indirect impact on the attractiveness of teacher-training programs and on the labor market for teachers? And would this be good or bad, since the occupation of teacher would be seen as a stepping stone to other positions?

## 2.3. Brazilian evidence

In Brazil, although there are some economic studies on the teachers' labor market (Barros et al., 2001; Anuatti-Neto et al., 2004), the economic literature on the occupational choice of teachers is not abundant,

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<sup>4</sup> According to Dolton and Van der Klaauw (1999), Corcoran et al. (2002) and a series of works synthesized in section 4.5 of Dolton (2006).

possibly due to the absence of suitable data. The area of Education has more regularly addressed the theme – e.g., Brito, 2007; FCC, 2009; Gatti and Barretto, 2009; Gatti et al, 2010; Tartuce, 2010 - but does not usually focus on quantitative analyses.

There are economic studies dealing with related issues. First, when comparing advantages and disadvantages associated with subgroups within the occupation. For example, Barbosa-Filho et al. (2009) and Becker and Kassouf (2012) estimate pay differentials among categories of teachers. In both cases, they seek to take as a basis for comparison what they call the "present value of the employment contract", a measure that considers costs and benefits throughout the career, adding to it retirement incomes, and which can be considered similar to  $V_P^i$ , as defined in Equation 1 of this work.

A second group of studies, such as Moriconi and Marconi (2008), Britto and Waltenberg (2014) and Machado and Scorzafave (2016), do not use proxies of  $V_P^i$ , but rather information on current wages at some point in time to compare teacher salaries with those of non-teachers. The first two studies conclude that teachers do not enjoy very favorable salary conditions, which could be related to the low attractiveness of the occupation. The third one detects that average teachers receive a higher hourly wage than non-teachers who are trained to be teachers but do not work as teachers - the possibility of selection bias at the root of the result is not ruled out, since the choice of teaching could be more likely among better qualified individuals.

A third set of studies - such as Brito (2007) and Louzano et al (2010), with data from ENADE 2004 and ENEM 2005,<sup>5</sup> respectively - attempted to portray future teachers, and what emerges is a profile of socioeconomically disadvantaged individuals, with relatively low academic performance.

Finally, there are analyses of aspects associated with occupational choice in general, not specifically related to the category of teachers, such as Cruz Lima et al. (2015), which investigate socioeconomic determinants of labor market insertion between 2000 and 2010, highlighting the influence of factors related to housing and labor market, such as the dichotomy between metropolitan areas and other places.

### 3. Data and variables

As stated in the introduction, the database employed in this article is unique, very rich and still unexplored in the analysis of factors determining the choice of undergraduate students to be or not to be a Basic Education teacher in Brazil.

The final version of the questionnaire was polished after an experimental field survey that took place in May 2015, which consisted of 52 interviews conducted in two public and two private universities, located in the city of Rio de Janeiro. The data collection of the main field research took place during the second semester of 2015 (August-November), having as universe the students of the aforementioned face-to-face courses, who had graduation scheduled for a period not exceeding two years after the moment in which they were interviewed.<sup>6</sup>

The crucial question was whether the respondents intended to work as Basic Education teachers, to which 59.6% of the respondents answered affirmatively, 35.2% answered negatively, while the remaining 5.2% said they were not sure. In a sample composed of young individuals who at some point in their lives

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<sup>5</sup> ENADE stands for National Exam for the Assessment of Student Performance; it is done by students finishing tertiary studies. ENEM stands for National High School Exam.

<sup>6</sup> As for the sample plan, using the PPT method (Probability Proportional to Population size) and based on the total number of students in accordance with the 2011 School Census, Brazilian states were selected, then municipalities within each state of the Brazilian federation, and then educational institutions within each municipality, respecting proportional quotas for each of the three fields already mentioned. Interviewees were approached by interviewers in the institutions of education.

must have thought of being teachers – since they had chosen a major leading to teaching – almost 40% say they do not want to become teachers, or did not know if they wanted to.

Perhaps this high drop-out rate reflects the low status of the profession, which pops up in information contained in the database itself. Table 1 summarizes responses to a question which required interviewees to rate a series of occupation as more, equally, or less, prestigious than Basic Education teacher. Assigning the value 1 to those which are more prestigious than teaching, -1 for the inverse, and 0 for equality of prestige, the average prestige of the occupation was calculated. Among 12 occupations, that of Basic Education teacher only proved to be more prestigious than social worker, shopkeeper and librarian, but less than nurse, accountant, policeman and the remaining occupations.

**Table 1: Comparing the prestige of Basic Education teacher with other occupations**

Occupation	Less prestigious profession (Value: -1)	Equally prestigious (Value: 0)	Most prestigious (Value: 1)	Average prestige in relation to Basic Education teacher
Doctor	7,892	9,641	280,271	0.915
Lawyer	8,092	24,893	265,546	0.862
Engineer	8,262	25,961	261,427	0.856
Higher Education Teacher	23,188	54,006	216,417	0.658
Computer Scientist	32,023	69,351	194,933	0.550
Advertiser	45,524	84,243	166,758	0.409
Accountant	65,617	97,066	133,124	0.228
Nurse	58,302	125,215	114,768	0.189
Policeman	73,124	110,773	106,381	0.115
Social Worker	91,311	141,161	67,053	-0.081
Shopkeeper	130,314	88,462	76,099	-0.184
Librarian	160,129	97,501	37,624	-0.415

Own elaboration based on survey data described in the article.

The bad image of the occupation is also revealed in the question on whether the interviewees would encourage a child (real or hypothetical) to become a Basic Education teacher. Less than half of the respondents answered that they would encourage with certainty (Table 2).

**Table 2: To what extent would you encourage your child to become a Basic Education teacher?**

	Freq.
I would strongly encourage	44.42%
Perhaps I would encourage	40.23%
It would definitely not encourage	15.34%

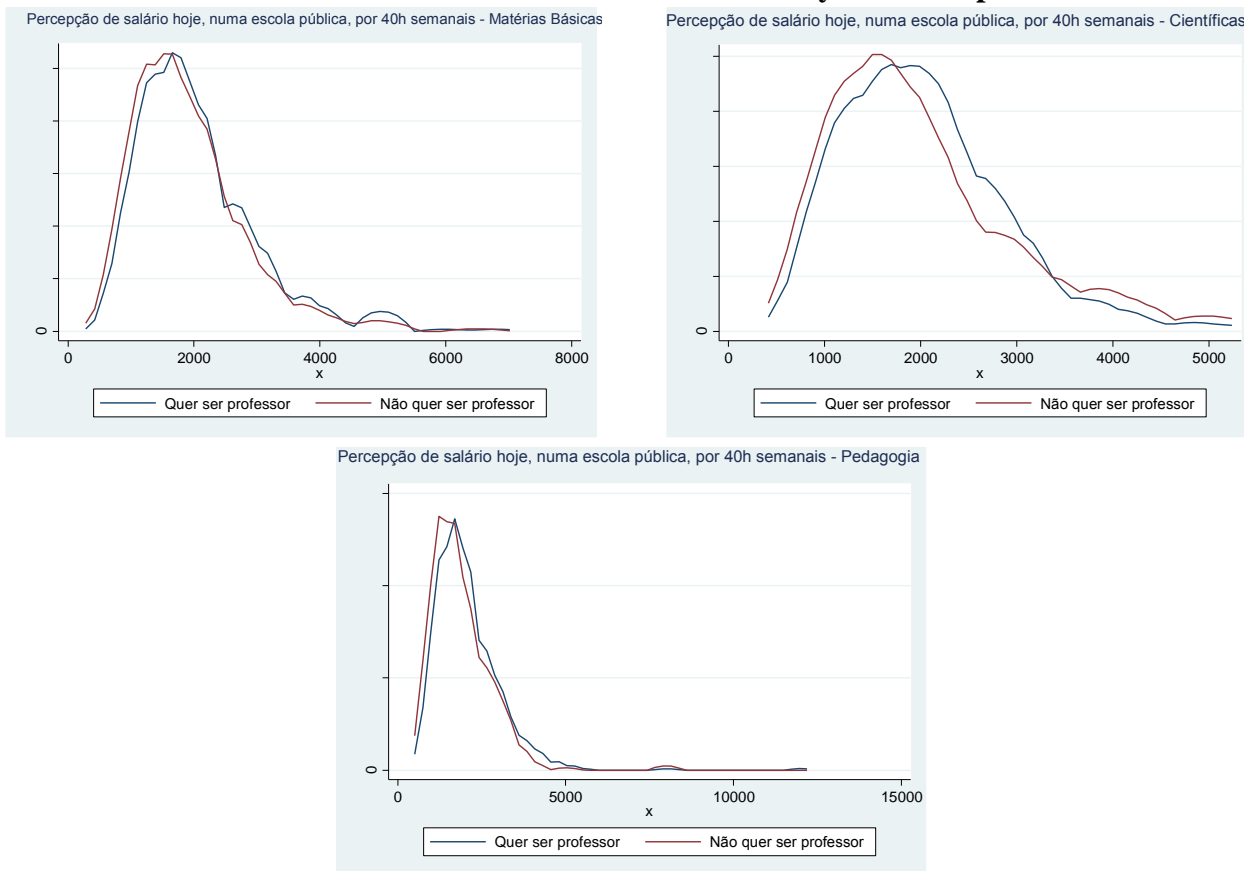
Own elaboration based on survey data described in the article.

One section of the survey was devoted to the perception of wages. The questionnaire was split between students of Pedagogy (expected to work mainly in the early years of Basic Education) and other fields (expected to work in High School). Students were asked about the salaries they believed a primary school teacher earned in state public schools early in their careers, as well as after 15 years working as a teacher, always considering a 40-hour workweek. This information is presented in the panels below by field and according to the intention to become a teacher (or not). People who were not sure about



becoming a teacher were grouped together with those who responded they did not want to. Distributions of these variables in different subgroups are presented in panels A-D.

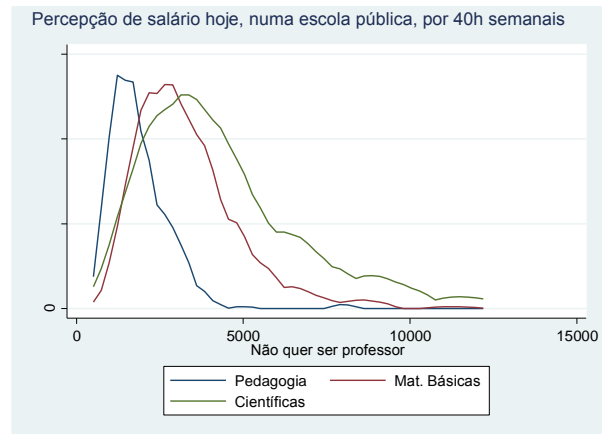
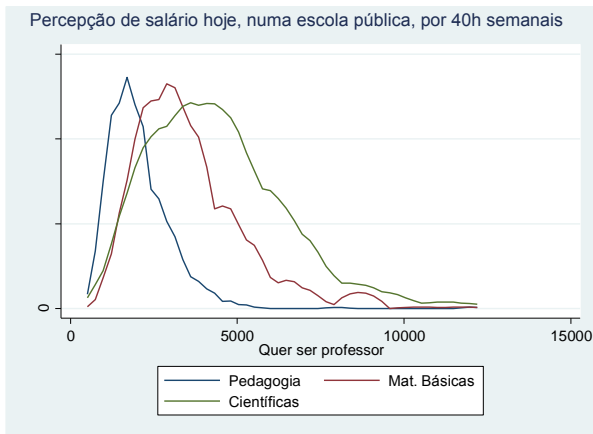
**Panel A: Perception of initial salaries in public schools. Distribution of the answers given by those who intend to be a teacher *versus* the others. By field of expertise.**



Own elaboration based on survey data described in the article.

Panel A shows the distribution of the initial expected salaries for Pedagogy has the least dispersion, both for students who want to become teachers and for those who do not want to. In the three fields, the distribution of wages of those who want to become teachers are to the right of the distribution of those who do not wish to be teachers, which could indicate a positive relation between wage perception and occupational choice. However, it is not possible to state that with certainty, since the curves are unconditional and, even visually, the difference only seems to be considerable in the area of Sciences.

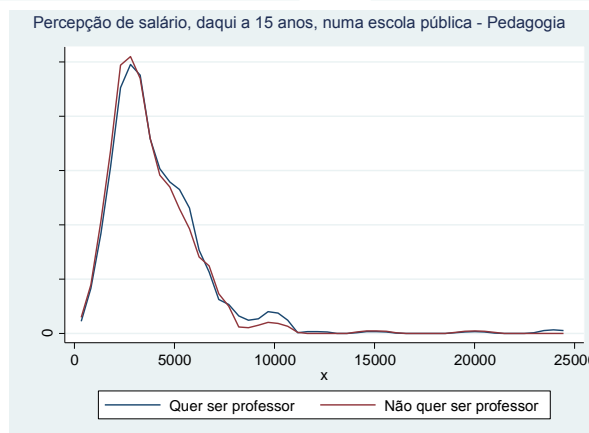
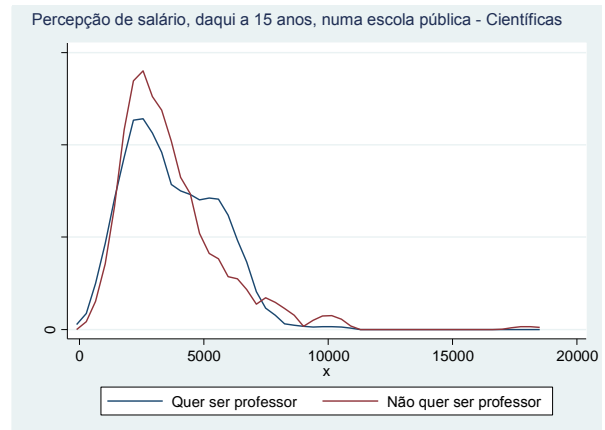
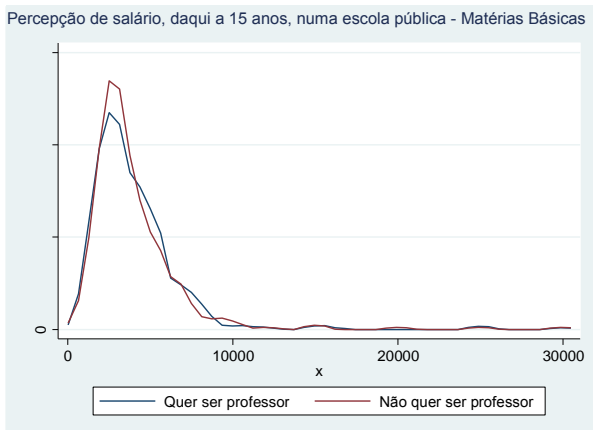
**Panel B: Perception of initial salaries in public schools. Distribution of the answers given by students from different fields. By intention or not to become a teacher.**



Own elaboration based on survey data described in the article.

When we observe the wage distributions for the three fields in the same graph (Panel B), it becomes clear the expectation for the initial salary is higher for Sciences, followed by Basic Subjects and by Pedagogy – both among those who intend to be teachers, and the others. The less ambitious salary perspective of Pedagogy students may reflect the fact that the question directed to them concerned Primary School, while for the other fields, the focus was on High School. But since both the other two areas answered questions regarding working at High Schools, the difference between them may be linked to hierarchy and prestige between undergraduate courses (Vargas, 2010) or to effectively different parameters in the labor market.

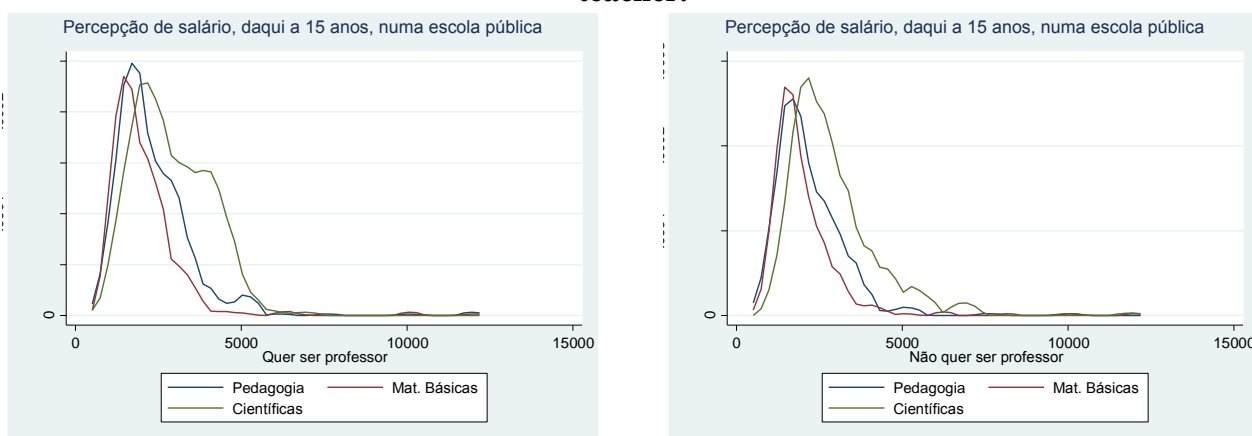
**Panel C: Perception of salaries in public schools of teachers with 15 years of experience. Distribution of answers given by those who intend to be a teacher *versus* the others. By field of expertise.**



Own elaboration based on survey data described in the article.

The distributions of wage expectations for teachers with 15 years of experience (Panel C) largely follow those of initial wage perceptions already discussed. However, dispersions are smaller than in Panel A (ignoring outliers), and the difference between those who intend to be a teacher and those who do not intend is less clear, with some segments of the graphs overlapping.

**Panel D: Perception of salaries in public schools of teachers with 15 years of experience. Distribution of the answers given by students from different fields. By intention or not to become a teacher.**



Own elaboration based on survey data described in the article.

The dynamics change somewhat, when different fields are compared (Panel D). Although the Sciences curve is still to the right of the other curves across a great extent of the support in each of the charts, the distributions for Basic Subjects and Pedagogy do not differ much from one another - possibly because the medium-term wage expectations of futures Pedagogues are contaminated by the possibility of working outside the classroom, as coordinators or principals.

As stated in the previous section, it is not easy to establish the empirical counterpart of the sophisticated theoretical models that have been elaborated. The database we use is very complete in the sense of extracting from the interviewees the maximum information following what the literature has pointed out as important to understand the factors correlated to the desire to be a teacher. Descriptions of their contents, and descriptive statistics of the variables used in the estimates, constructed in order to capture some aspects highlighted in the literature, can be found in Table 3.

**Table 3 - Descriptive statistics of the variables used in the model**

Variable	Description or details	# Observations	Weight	Average	Std. Dev.	Min.	Max.
Teacher		1.994	301317	0,595746	0,490748	0	1
<b>Salary</b>							
Salary in public school today	Salary: perception and expectation	1.928	289073,9	-0,04787	0,9473954	-1,641316	10,36129
Salary in public school in 15 years		1.767	266179,4	0,098682	1,344221	-1,332427	9,879019
Reservation wage		1.944	291375,4	-0,06872	0,9854002	-2,045488	6,260757
<b>Socioeconomic profile</b>							
Women		1.994	301317	0,719891	0,449053	0	1
White and Asians (self-reported)	<i>Versus</i> Black, Brown and indigenous	1.987	300697,8	0,414677	0,492667	0	1
Age		1.946	293891,9	28,00102	8,730598	18	64
Per capita wealth index	Built after answers to questions on possessions of members of the household	1.982	299414,9	1,332657	1,044919	0	8
Parental education	In years of study, Highest among parents	1.985	299602,5	10,18373	4,341238	0	17
Public primary school	Predominantly in state or municipal schools (versus private or federal)	1.980	299095,5	0,750793	0,432554	0	1
Public high school		1.978	298877,1	0,773031	0,418873	0	1
<b>Experience and vocation</b>							
<i>Magistério</i>	If completed teacher-training at high-school	1.994	301317	0,514813	0,499781	0	1
Tried another course before this one		1.994	301317	0,342575	0,474572	0	1
Worked before enrolling in this course		1.994	301317	0,666946	0,471306	0	1
Worked as a teacher before enrolling in this course		1.994	301317	0,196071	0,397024	0	1
Was an intern		1.994	301317	0,683012	0,465304	0	1
Lic_Likes education		1.994	301317	0,852961	0,354146	0	1
Lic_Easy to be selected		1.994	301317	0,213387	0,4097	0	1
Lic_To work as a teacher		1.994	301317	0,628939	0,483089	0	1
Lic_To obtain a higher education diploma		1.994	301317	0,623392	0,484536	0	1
Lic_Was a teacher before the course	Reasons for having chosen the current course ( <i>licenciatura</i> in Portuguese)	1.994	301317	0,185984	0,389094	0	1
Lic_Low grade in ENEM		1.994	301317	0,112631	0,316142	0	1
Lic_Influenced by friends/family		1.994	301317	0,239908	0,427028	0	1
Lic_Easy access	(Continues...)	1.994	301317	0,384676	0,486519	0	1
Lic_Other courses unaffordable		1.994	301317	0,196489	0,397343	0	1

Lic_Easy course		1.994	301317	0,123208	0,328677	0	1
Lic_To conciliate with work tasks	(Ctd...) Reasons for having chosen the current course ( <i>licenciatura</i> in Portuguese)	1.994	301317	0,287535	0,452614	0	1
Lic_To conciliate with family life		1.994	301317	0,312996	0,463713	0	1
Lic_To open doors		1.994	301317	0,723408	0,447314	0	1
<b>Characteristics and practices of the higher education institution</b>							
Private university		1.994	301317	0,573224	0,49461	0	1
Teaching assistanceship	Academic activities	1.994	301317	0,33055	0,470412	0	1
Teaching initiation program (PIBID)		1.994	301317	0,371837	0,483296	0	1
Research		1.994	301317	0,794564	0,40402	0	1
<b>Student academic quality proxies</b>							
Mediocre (awful, bad and regular)	Level of knowledge regarding classmates (self-declared)	1.994	301317	0,181215	0,385197	0	1
Good		1.994	301317	0,582854	0,493088	0	1
Excellent		1.994	301317	0,235931	0,42458	0	1
Knowledge of English	Self-declared (from bad to great)	1.978	299899,5	2,499352	1,146178	1	5
Ever retained	In Elementary or High School	1.994	301317	0,241104	0,427754	0	1
<b>Attitude to risk</b>							
Risky investment	Would allocate nothing (1) rising positive values (2 to 5) or all (6) in a risky investment	1.994	301317	2,489023	1,421122	1	6
Risky city	City with high unemployment and average wages <i>versus</i> another where both are low	1.994	301317	0,578868	0,493742	0	1
<b>Fields</b>							
Pedagogy		1.994	301317	0,494698	0,499973	0	1
Basic Subjects	Portuguese, Maths, History and Geography	1.994	301317	0,367795	0,482206	0	1
Sciences	Chemistry, Physics and Biology	1.994	301317	0,137506	0,344382	0	1
<b>Place of residence</b>							
Midwest	Macro regions	1.994	301317	0,114318	0,318198	0	1
Northeast		1.994	301317	0,219954	0,414216	0	1
North		1.994	301317	0,102769	0,303657	0	1
Southeast		1.994	301317	0,441114	0,496521	0	1
South		1.994	301317	0,121845	0,327107	0	1
Contryside	<i>Versus</i> capital or metropolitan area	1.994	301317	0,504904	0,499977	0	1

Own elaboration based on survey data described in the article.

#### 4. Econometric method

As we wanted to analyze the determinants of occupational choice, our dependent variable was qualitative. The interest was particularly in the decision whether or not to follow a teaching career, that is, the dependent variable is binary. The construction of this variable comes from the question about whether or not to be a Basic Education teacher, as follows:

$$\begin{aligned} y_i &= 1 \text{ if the } i\text{-th student intends to be a teacher of Basic Education.} \\ y_i &= 0 \text{ if the } i\text{-th student responded negatively or was not sure.} \end{aligned} \quad (\text{Equation 4})$$

Being binary the variable, we estimate the probability of being a teacher considering several aspects that can influence this decision. Usually, when we have dependent variables of this type, we work with a latent variable model ( $y_i^*$ ), to which would correspond to a measure of utility derived from the chosen option (whether or not to be a teacher).

This latent variable can be modelled as a continuous variable, according to the following equation:

$$\begin{aligned} y_i^* &= \alpha + \beta_1 W_i^{0,P} + \beta_2 W_i^{15,P} + \gamma X_i + \mu_i & (\text{Equation 5}) \\ \text{If } y_i^* > 0 & -y_i = 1 \\ \text{If } y_i^* \leq 0 & -y_i = 0 \end{aligned}$$

Where:  $W_i^{0,P}$  is the salary the interviewee thinks a teacher of Basic Education in public schools receives at the beginning of his career;  $W_i^{15,P}$  is the salary the interviewee believes a public-school teacher of Basic Education earns with 15 years of experience;  $X$  is a vector of variables that cover aspects related to socioeconomic profile, experience and vocation, characteristics of higher education, academic quality of the student, risk-aversion or -propensity, dummies for the three field (Pedagogy, Basic Subjects, Sciences) and place of residence;  $\alpha$ ,  $\beta$  and  $\gamma$  are parameters to be estimated and  $\mu$  is a random term which, by hypothesis, is normally distributed.

The variables  $W_i^{0,P}$  and  $W_i^{15,P}$  were created from the answers to the questions about the perception of salary through a standardization, with zero mean and unit standard deviation within each field. This methodology was chosen since salary issues were related to working in Primary Education for Pedagogy and in Secondary Education for other fields. With the standardization, it was possible to use salary information of the whole sample in some of the estimated models.

To estimate Equation 5, we used probit. Regressions were estimated for the whole sample and for subgroups defined by gender (models 2-3) and by field (Pedagogy, Basic Subjects and Sciences, models 4-6), whose rationale was registered in the literature review section.

#### 5. Results and discussion

Table 4 shows the marginal effects of the covariates, evaluated in all cases in the means of the variables in each estimation, in the models: complete (1), by sex (2-3) and by field (4-6).

##### 5.1. Wage variables and occupational choice

In the regression that covers the whole sample (model 1), the salary respondents believe a teacher receives today has a marginally positive and statistically significant effect on the desire to be a teacher. *The salary expectation is, therefore, a determining factor of the occupational choice of teaching.* It is worth noting that this result is obtained even though there is a considerable battery of covariates in the models - more than is usually found in the literature. In other words, even controlling for important effects in determining the choice of being a teacher - such as socioeconomic profile, place of residence and proxies of vocation and experience - the perceived salary maintains a positive relation with the intent to entry the occupation. The effect remains in all estimates applied to subsamples (models 2-6). The variable was quite robust to the inclusion and exclusion of variables, in results not reported here.

At this stage of our research, we still do not have information on the accuracy of the salary estimations made by the interviewees. It is possible that those who wish to be teachers have, on average, overestimated the initial salary actually paid in the public sector – either because they are poorly informed or because they are contaminated by their intent to become teachers. A possible information deficit cannot be entirely attributed to a disadvantaged social origin or to a poorer school performance, because there are controls for that, just as there are controls for work experience (as a teacher or not) and internship. As for the hypothesis that there is a latent vocation, which would explain both the overestimation of the salary and the option for the teaching career, it only makes sense if vocation is not properly captured by the variables included to express it in the regression. And if the power of vocation would be so strong as to affect the salary perception of those who wish to become teachers, which does not seem plausible to the sample as a whole.

Another possibility is that those who do not want to be teachers have underestimated the initial salaries of a teacher in the public sector. One cannot rule out the hypothesis that the underestimation is due to a lack of interest in the occupation – for example, explained by some unobservable variable. The caveats raised in discussing the overestimation hypothesis though, also apply to a possible underestimation.

Another salary variable, which expresses the belief about the salary a teacher with 15 years of experience receives, is also positive and significant to explain the intention to be a teacher in the model with the full sample (1), suggesting that *career perspectives matters too - in addition to the immediate remuneration, which is controlled for in the model.* This result deserves to be emphasized, because if, on the one hand, it echoes the theoretical literature, on the other hand, it is not a very frequent evidence in the empirical literature, due to the lack of appropriate data for it, so that it constitutes a contribution of this study. The same considerations already made about the other wage variable are valid here, with one additional comment: it is reasonable to assume that for a student, it is more difficult to estimate the salary of a teacher with 15 years of experience than the starting salary. The sign remains positive in regressions with subsamples (models 2-6), however, it is only significant for women (perhaps because they, on average, catch a longer time horizon than men) and for Basic Subjects sample.<sup>7</sup>

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<sup>7</sup> We tested a specification in which the variable  $W_i^{15,P}$  was replaced by a dummy that assumed value 1 if the person did not know how to estimate the salary of a Basic Education teacher with 15 years of career, and 0 otherwise - which affected about 7.5 % of the unweighted sample. The marginal effect of this variable was unstable – it was not significant in any model and the sign oscillated between positive and negative – suggesting an absence of systematic correlation between not being able to form a belief about the wage for 15 years from now and the intention to be a teacher. The marginal effects of the other variables did not change substantially. These two findings are arguments in favor of the full model, including the variable  $W_i^{15,P}$ , even at the cost of losing a certain amount of observations. The fact that this modality of missing information is not conditionally correlated with the choice between wanting or not to be a teacher also makes less plausible the hypothesis of contamination of the intention to be a teacher over the expectation of wages.

**Table 4: Probit model for occupational choice of a Basic Education teacher. Marginal effects.**

Covariate:	Model:	(1) Full sample	(2) Only Women	(3) Only Men	(4) Pedagogy	(5) Basic Subjects	(6) Sciences
<b>Salary</b>							
Salary in public school today		0,0701*** (0,0163)	0,0594*** (0,0173)	0,104*** (0,0299)	0,0608** (0,0294)	0,0677*** (0,0259)	0,0762* (0,0424)
Salary in public school in 15 years		0,0268*** (0,0101)	0,0273** (0,0110)	0,0207 (0,0234)	0,0365 (0,0335)	0,0323** (0,0133)	0,0583 (0,0690)
Reservation wage		-0,0786*** (0,0236)	-0,0702*** (0,0260)	-0,0879** (0,0351)	-0,0684** (0,0318)	-0,0367 (0,0303)	-0,241*** (0,0450)
<b>Socioeconomic profile</b>							
Women		0,0744* (0,0424)	-	-	0,235*** (0,0858)	-0,00378 (0,0879)	0,0881 (0,0690)
White and Asians		-0,0234 (0,0445)	-0,0320 (0,0472)	-0,0292 (0,0586)	0,00236 (0,0582)	0,00603 (0,0583)	-0,120* (0,0692)
Age		0,00577 (0,00371)	0,00335 (0,00384)	0,0103* (0,00540)	0,00295 (0,00431)	0,00570 (0,00522)	0,0275*** (0,00723)
Per capita Wealth Index		-0,0528*** (0,0157)	-0,0652*** (0,0197)	-0,0366 (0,0407)	-0,0535** (0,0261)	-0,0571** (0,0281)	-0,0507 (0,0316)
Public primary school		0,117* (0,0641)	0,0979 (0,0833)	0,164*** (0,0586)	0,186** (0,0906)	0,0597 (0,0636)	0,0813 (0,0818)
Public secondary school		-0,0487 (0,0556)	-0,0925* (0,0556)	0,0523 (0,0946)	-0,0240 (0,0740)	-0,0666 (0,0919)	-0,0738 (0,117)
Parental education (highest)		-0,0102** (0,00459)	-0,00824* (0,00493)	-0,00950 (0,00950)	-0,00880 (0,00611)	-0,0108 (0,00724)	-0,0229** (0,0106)
<b>Place of residence</b>							
Midwest		-0,300*** (0,0526)	-0,316*** (0,0595)	-0,297*** (0,104)	-0,226** (0,0966)	-0,411*** (0,0702)	-0,247** (0,112)
Northeast		-0,192*** (0,0703)	-0,227*** (0,0745)	-0,180 (0,153)	-0,154* (0,0902)	-0,251** (0,121)	-0,208 (0,129)
North		-0,238*** (0,0723)	-0,270*** (0,0819)	-0,198 (0,131)	-0,168* (0,101)	-0,314*** (0,0900)	-0,146* (0,0849)
Southeast		-0,150* (0,0796)	-0,128 (0,0778)	-0,218* (0,129)	-0,0712 (0,0978)	-0,321*** (0,110)	0,122 (0,0939)
Countryside (vs. state capital or metropolitan area)		0,0169 (0,0783)	-0,0536 (0,0819)	0,180** (0,0753)	-0,0755 (0,0978)	0,162** (0,0707)	0,0264 (0,0795)
<b>Field</b>							
Pedagogy		0,0853 (0,0685)	0,130** (0,0615)	-0,112 (0,0979)	-	-	-
Basic Subjects		0,0517 (0,0446)	0,0455 (0,0550)	0,0561 (0,0834)	-	-	-
<b>Characteristics and practices of the higher education institution</b>							
Private university		0,0707 (0,0540)	0,0544 (0,0565)	0,119 (0,0763)	-0,00793 (0,0710)	0,183** (0,0768)	0,00993 (0,0852)
Teaching assistanceship		0,0733 (0,0508)	0,0916* (0,0552)	-0,0186 (0,0808)	0,148** (0,0631)	0,0244 (0,0685)	-0,0626 (0,0772)
Scientific initiation (PIBID)		0,0729 (0,0512)	0,0938 (0,0572)	0,0748 (0,0687)	0,0525 (0,0616)	-0,0100 (0,0907)	0,108 (0,0668)
Research		0,000336 (0,0451)	0,0165 (0,0624)	-0,0712 (0,0783)	-0,0954 (0,0619)	0,0385 (0,0745)	0,0834 (0,0784)
<b>Proxies de qualidade acadêmica do aluno</b>							
Mediocre (awful, bad and regular)		0,0284 (0,0641)	-0,0483 (0,0857)	0,104 (0,0957)	-0,0227 (0,0939)	0,160 (0,0995)	-0,251*** (0,0738)



Good	0,100*	0,118*	0,0683	0,0365	0,273***	-0,189**
	(0,0587)	(0,0695)	(0,0827)	(0,0670)	(0,0798)	(0,0811)
Knowledge of English	-0,0283	-0,0404	-0,0191	-0,00158	-0,0321	-0,0326
	(0,0226)	(0,0290)	(0,0294)	(0,0267)	(0,0321)	(0,0336)
Retained	0,0443	0,0165	0,0912	0,0632	-0,0204	-0,181**
	(0,0503)	(0,0663)	(0,0746)	(0,0656)	(0,0721)	(0,0829)
<b>Risk attitude</b>						
Risky investment	0,00640	-0,000947	0,0264	0,0150	0,0188	-0,0405
	(0,0145)	(0,0132)	(0,0268)	(0,0132)	(0,0199)	(0,0324)
Risky city	-0,102**	-0,0947**	-0,110	-0,171***	-0,0446	-0,0844
	(0,0420)	(0,0463)	(0,0766)	(0,0517)	(0,0596)	(0,0776)
<b>Experience and vocation</b>						
Tried another course before this one	-0,00129	0,00780	-0,0540	0,0337	-0,0622	-0,117**
	(0,0438)	(0,0515)	(0,0677)	(0,0549)	(0,0571)	(0,0585)
Worked before enrolling in this course	-0,0491	0,00325	-0,169**	0,0182	-0,184**	0,0278
	(0,0397)	(0,0477)	(0,0822)	(0,0417)	(0,0791)	(0,0835)
<i>Magistério</i>	0,120**	0,0790	0,150*	0,135**	0,0824	-0,0319
	(0,0518)	(0,0506)	(0,0787)	(0,0557)	(0,0680)	(0,0712)
Worked as a teacher before enrolling in this course	-0,0480	-0,0999**	0,121	-0,0600	-0,0336	0,298***
	(0,0422)	(0,0508)	(0,0907)	(0,0581)	(0,0842)	(0,111)
Was an intern	-0,0449	0,000495	-0,140*	-0,0241	-0,0109	6,79e-05
	(0,0395)	(0,0468)	(0,0846)	(0,0649)	(0,0596)	(0,0556)
Lic_Likes education	0,123**	0,0889	0,143*	0,0378	0,215***	0,0162
	(0,0571)	(0,0625)	(0,0736)	(0,0785)	(0,0773)	(0,110)
LicEasy to be selected	0,0162	0,0137	0,0100	0,0235	0,0494	0,104
	(0,0389)	(0,0452)	(0,0765)	(0,0592)	(0,0689)	(0,0683)
Lic_To work as a teacher	0,211***	0,207***	0,248***	0,172**	0,289***	0,291***
	(0,0538)	(0,0687)	(0,0693)	(0,0680)	(0,0430)	(0,0834)
Lic_To obtain a higher education diploma	0,0627	0,0762	0,0542	0,0706	0,0113	0,0746
	(0,0490)	(0,0533)	(0,0772)	(0,0571)	(0,0672)	(0,0738)
Lic_Was a teacher before the course	0,139***	0,116***	0,138*	0,143***	0,131	-0,0555
	(0,0394)	(0,0351)	(0,0824)	(0,0485)	(0,0958)	(0,134)
Lic_Low grade in ENEM	-0,0469	-0,0158	-0,0802	0,0448	-0,171**	-0,120
	(0,0763)	(0,0897)	(0,103)	(0,0956)	(0,0837)	(0,139)
Lic_Influenced by friends/family	0,0172	0,0147	0,00314	0,0193	0,0320	0,0516
	(0,0393)	(0,0480)	(0,0871)	(0,0500)	(0,0646)	(0,0866)
Lic_Easy access	0,0498	0,0737	-0,0602	0,0653	0,0833	-0,0894
	(0,0457)	(0,0511)	(0,0650)	(0,0527)	(0,0676)	(0,103)
Lic_Other courses unaffordable	-0,0949*	-0,108**	-0,0141	-0,0856	-0,123	0,0123
	(0,0500)	(0,0519)	(0,110)	(0,0651)	(0,0875)	(0,108)
Lic_Easy course	0,0258	0,0330	0,00604	-0,0656	0,0454	0,0903
	(0,0656)	(0,0701)	(0,0743)	(0,0936)	(0,0944)	(0,0863)
Lic_To conciliate with work task	-0,0698	-0,0615	-0,108	-0,109*	-0,0418	0,0403
	(0,0567)	(0,0581)	(0,0905)	(0,0613)	(0,0964)	(0,0898)
Lic_To conciliate with family life	0,0629	0,0366	0,0942	0,0757	0,0594	0,0486
	(0,0507)	(0,0477)	(0,102)	(0,0607)	(0,116)	(0,101)
Lic_To open doors	-0,0434	-0,0210	-0,0570	-0,0483	-0,0665	0,00411
	(0,0374)	(0,0502)	(0,0741)	(0,0621)	(0,0580)	(0,0862)
# Observation	1.644	1.097	547	648	585	411
Pseudo R <sup>2</sup>	0,209	0,211	0,258	0,256	0,237	0,320
Wald Statistic	3943***	778,5***	1595***	13715***	3674***	-
Std. Dev. In parenthesis..						

\*\*\* p<0,01; \*\* p<0,05; \* p<0,1

Own elaboration based on survey data described in the article.

The last salary variable included is the reservation wage. The marginal effect always presents the expected negative sign, and in five of the six models, there is statistical significance. More demanding individuals are less likely to want to be teachers, which makes sense.

## 5.2. The profile of the future teacher

The profile of the future teacher unveiled by our results matches the sparse prior evidence (see section 2). Parents' education and home wealth are negatively correlated with the intention to be a teacher, while having studied in municipal or state public schools in most of the extent of the elementary schooling has a positive correlation. In line with the literature, women are more likely to become teachers, which is expressed in two ways. First, in the sample composition: more than 70% of respondents are women. Second, in the positive and significant marginal effect of the variable *female* on the model with the full sample (1), which is repeated in the model for Pedagogy (4), more feminized than the others fields.

Taking Sciences as the reference category, dummies in other fields show a positive sign – which was expected, assuming that students of Sciences have greater opportunities outside teaching – but the effects are not statistically significant in the model with a full sample (1). When the sample is restricted to women (model 2), Pedagogy students appear to be significantly more likely to opt for teaching than Sciences students, in line with the literature.

In the model with the complete sample (1), among the variables indicating academic quality of the student, only *Good* is significant. The positive sign reveals that students who think they perform well in relation to her peers are more likely to want to become teachers than those who consider themselves to excel. This may mean that the best students refuse to entry the occupation, but some caution is needed because the variable is self-reported. And even if the self-reported information does have a strong correlation with the actual academic quality of students, it cannot be said that excellent students will be better teachers than good students. The variable *Good* remains positive and significant in the models only with women (2) and in the Basic Subjects (5).

In Sciences, *Good* is statistically significant, but the sign is negative. In such model, the marginal effect of *Mediocre* is also negative and significant, just as that of *Retained*. One interpretation is that in Sciences, it is the best students who intend to become teachers –contradicting the literature. An explanation would be prior selection, with academically stronger students having already dropped out during college, but it is not possible to fully exploit this hypothesis only with this database.

Regarding attitudes towards risk, the variable that stands out is *Risky city*, whose sign is systematically negative, with statistical significance in the models with full sample, female and Pedagogy. It should be noted that even with the broad set of controls - including for factors that could be correlated to the attitude towards risk, such as socioeconomic profile and gender - the variable remains significant. Another important point is that, even among categories that could already be seen as composed of people who are more risk-averse, such as women and future pedagogues, the effect remains, suggesting the occupation is attractive to those most risk-averse – a result compatible with theoretical models, but barely tested empirically.

Color/race is only important in Model 6 (Sciences), in which self-reported whites and Asians are less likely to intend to be teachers than the other groups. Age always shows positive signs, with statistical significance in two models. As for macro regions, the more regular result are negative and significant effects of all regions in relation to the South region, where the intention to become a teacher seems to be

more intense. Living outside states capitals appears to be a determining factor in the regression of men, as well as in the Basic Subjects.

### **5.3. Vocation, university activities and experience in the labor market**

The variable *Magistério* means the person followed a teacher-training program at the secondary level. It can be viewed as a proxy for vocation to be a teacher, or indicative of a prior contact with the profession. Its effect is positive and significant in the model with the full sample (1), between men (3) and between students of Pedagogy (4).

When statistically significant, variables that are strictly related to experiences in the labor market, either in general or in the form of a teacher, or as a trainee, show negative signs. Possibly the maturity gained from the experience, or the unpleasant situations experienced in the work, repel people from the occupation. The exception to the rule appears in the model for Sciences, in the variable that expresses work experience as a teacher before graduation, with a positive and significant marginal effect.

In the block of variables that reflect the reasons for choosing the field he or she is studying, the three most regular results are positive signs and statistical significance for the variables: "to work as a teacher"; "because I was a teacher before the course"; and "because I like education." The third one could capture vocation for teaching. In the model with the full sample, as well as in that restricted to women, not affording to enroll in another course also appears as a significant variable, with a negative sign. Perhaps this shows teacher-training courses as a gateway to the university for young people who, intimately, do not have teaching as their ultimate goal – something like the inverse of vocation for teaching.

In the block of characteristics and activities carried out in universities, signs are often positive, as predicted, but few of the effects are significant. Studying at a private university has a positive and significant coefficient in Basic Subjects. The same holds for participating in teaching assistanceship, both for women and for Pedagogy students.

## **6. Conclusions**

For some decades the academy and policy makers have been identifying and analyzing the problem of teacher shortage in Basic Education in a quantitative perspective. More recently, qualitative aspects and hidden scarcity have also become the focus of attention. One way to investigate this is through the analysis of occupational choice. This is what is done in this article, which uses a database still unexplored to produce evidence on the factors that attract or drive away potential teachers of Basic Education in Brazil and to outline the profile of the future Brazilian teacher.

The database has some limitations. First, data are cross-sectional and not the ideal, longitudinal, data. Second, the database was built up from interviews, so there may be errors and inaccuracies of different natures in the answers - in particular, the variable of occupational choice we employ is a statement of an intention to be or not to be a teacher, but it is not the record of a choice actually made. Third, although the sample has the virtue of being representative for three broad areas, it is not for each subject separately - but probably the ambitions of a graduate in Portuguese Language are different from those of one in Mathematics, as well as the labor market opportunities in in each of these areas. The same holds for Chemistry and Biology, for example. Finally, it is important to note that the results presented here cannot be readily extrapolated to the entire population, since they were obtained with a sample that does not

include: (i) people who did not attend university, (ii) those who have dropped out of their courses, (iii) and those who have entered other courses, including distance-learning degrees.

With these caveats in mind, the set of covariates used in the estimates is broader than is usually found in the literature. Salary expectations prove to be a determinant of occupational choice for teaching, both in the medium- and in the short-term - especially in the short-term. It makes sense to consider that what individuals use to make their decisions are their perceptions, accurate or not, so that wage perceptions can be more decisive in the transition from higher education to the labor market than information on wages actually paid. However, to verify the extent to which individuals perceptions match reality would be important, for example, in the definition of policies to increase the attractiveness of the occupation.

Significant in many models are aspects that can be interpreted as evidence of hidden scarcity in the future, such as a greater tendency of student living out of states capitals to intend to become teachers – at least among men and among teachers of Basic Subjects. The nature of the hidden scarcity that would entail is a possible difficulty filling vacancies in capitals and metropolitan areas, whose labor markets are dynamic, with more alternatives.

The teacher profile that comes out of the study is of an individual socio-economically disadvantaged, who is risk-averse and usually an academically average student. Female predominance is found both in the sample composition and in the propensity to entry the occupation. College's characteristics and practices, a record of studies (*magistério*) and experience (internship and work), as well as proxies of vocation also have their importance, at least in some of the models.

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