TEACHERS' SALARIES AND LABOUR CONDITIONS IN BRAZIL: A CONTRIBUTION FROM CENSUSES DATA

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ABSTRACT

The article aims at describing some characteristics of the teaching work and at comparing the payment of teachers to the payment of other professionals with the same level of instruction. With this intention, the authors analyzed microdata from PNAD and School Census in 2009 through descriptive and inferential techniques. The results pointed out challenges in relation to 1. formation, due to the fact that one third of primary education teachers and 50% of childhood education teachers are not graduated; 2. working conditions, once an expressive number of teachers work in more than one school and teach a high number of students per class; and 3. payment, whereas teachers' socioeconomic level and income are inferior to other professionals' socioeconomic level and income even if the latter have equivalent or lower level of instruction than the former.

TEACHERS ● WORKING CONDITIONS ● SALARIES

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In **PAST DECADES**, in several countries teachers have often been assigned a key role in educational programmes and held responsible for the results of the educational process in Public school systems. Some quantitative studies (for instance, Rivkin *et al.*, 2005) may have contributed to this, in as much as they measured the impact of teaching on students' achievement in standardised tests[1]. Moreover, the effects of educational reforms carried out in the 1990s in Latin American countries, including Brazil, have led to restructuring teaching work and teachers' role in government programmes in the region (OLIVEIRA, 2004).

Anyhow, in view of the importance of teacher's role to high-quality education, basic professional aspects such as teacher education, workload, pay and career (VIEIRA, 2003) should be accordingly dealt with by educational policies. These aspects are all the more relevant to the analysis in countries like Brazil, where the teaching profession has been historically depreciated, both in social and economic terms (ALMEIDA, 1989); and where universal access to education, though assured for younger students, has still not met the goal of covering the 4-to-17 year olds[2] so all may have full access to good-quality education.

This article presents some features of teaching work, relative to teacher education, workload and career attractiveness, underlining the salaries issue, by comparing them to those of other professionals with similar education level.

This issue is sometimes controvert among Brazilian scholars; some studies (BARBOSA FILHO, PESSÔA, 2008; 2008a; LIANG, 1999) found teachers' pay is equivalent to that of similar professionals. In the country, the issue has for years taken on a purely ideological nature, as public school system management (at federal, State, and municipality levels) would simply not disclose data on professional pay. A 1997 pioneer school census (under minister of Education Paulo Renato de Souza) used an instrument sent to schools that inquired the teachers' addresses, but not the disciplines taught neither their workload – and the information on pay without the corresponding working hours is of limited utility. Another attempt was

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1 Although they allow for relevant information on school networks, we believe that standard-ised tests, which assess only cognitive abilities in literacy, maths, and sometimes sciences, do not assess all purposes aimed at by school systems, and should therefore be not taken as absolute, or as the sole measure of school effectiveness. For a critical approach of the subject, see Rothstein & Jacobsen (2008), Souza & Oliveira (2003), and Ribeiro *et al.* (2005).

2 According to the Constitutional Amendment n.59 of Nov.11, 2009, compulsory schooling should be in effect to this age-group by 2016 (Brasil, 2009).

done by Inep in 2004; though the instrument was far more complete than the previous one, the return rates were too low.

Resorting to a different source, a pioneer work was commissioned by Inep in 2003 (SAMPAIO ET AL., 2002)[3] that drew on data from Pnad (National Household Sample Survey)[4] to compare teachers' pay to professionals' from other fields; the study clearly proved teachers to be far less paid than their counterparts with similar education. Another recent study commissioned by Unesco – the United Nations Educational, Scientific, and Cultural Organization – to Gatti and Barretto (2009), after a broad view on the teaching profession in Brazil (background, legislation, teacher training, etc.) resorted to 2006 Pnad data to conclude that teachers with higher education get lower pay than other professions to which the same educational level is required.

In capitalist societies, the amount of pay is basic for any profession – there included the teaching profession, in the country's present educational context. It is noteworthy that underneath the issue of teachers' pay lay relevant factors that have a bearing on the quality of education, such as: attractiveness of good professionals for the career; attractiveness of well-prepared graduates for teacher education courses (GATTI ET AL., 2010); social value of teaching in the current context of teaching labour flexibilization and worsening conditions, following recent educational reforms (OLIVEIRA, 2004); school system financing, as teachers' salaries amount to about 60% of state education department costs, being thus a key item for planning investments in the sector (CAMARGO, GOUVEIA, MINHOTO, 2009).

The following section discusses the study methodological issues; next we sketch basic education teachers' profile, before discussing the study results and teachers' pay, and end with some comments on the findings.

METHODOLOGICAL ISSUES

This study initially resorted to the 2009 School Census and Pnad data. Micro data on the 1.97 million teachers counted by the School Census allowed for describing their features as to sex, age, ethnicity, education, work and working conditions (type/sector of school system,

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3 The publication date is 2002 because the journal issue was late.

4 Pnad is a yearly survey carried out since 1971 by the IBGE (Brazilian Institute of Geography and Statistics), except in the years of national census (every ten years) that regularly inquires on demographic data such as housing, education, work, pay etc. and, in a non-regular basis, includes a specific subject such as migration, health, nutrition etc.

number of schools, classes, and students per class) by school tier[*], in order to contextualize the discussion. Data are here presented in relative frequency (%).

Next, Pnad micro data were analysed. The 2009 survey interviewed 399,387 people selected in a probability sample (three-stage, by municipalities, census sectors, and housings) of the national population estimated in 191.8 million. The present study has focussed on a subsample of 5,496 basic education teachers. In order to homogenize the sample concerning workload, to avoid great variability in mean pay value (and not other factors that may interfere, such as region, school system and school tier), the analysis on pay resorted to data of only 3,564 teachers who had teaching as their main occupation and worked at it at least 30 hours a week.

The issue of weekly working hours is of methodological relevance: since Pnad is not focussed on the educational sector, its data on weekly workload are dubious: one can't tell whether the teacher's answer to IBGE agent refers to the actual time spent in class or to the full week workload (time in class plus in extra-class activities, such as planning, correcting etc.). Though the latter should be the correct answer, as conditions vary across the country different kinds of answer may be expected: some school systems (municipalities' or States') do not consider – and do not pay for – extra-class activities; others do foresee a percentage of time for them, but do not require that the teacher spends them at school. For these and other reasons, Pnad data on teachers' workload are subject to several interpretations according to the respondent specific situation. Therefore, at the risk of over or underestimating some teachers workload, the analysis of salaries considered only those who answered working 30 or more weekly hours.

Following previous studies that used Pnad as source of information on pay, this study compares teachers' mean pay between country regions, States, teacher education level, and school tier where they teach. Data are presented in means.

Teachers' mean pay was also compared to that of other professionals' – secondary-level technicians and "arts and sciences professionals"; the latter form an IBGE-defined occupational group that includes, besides qualified basic education teachers, further 71 higher-education occupations from various fields. The one-way variance analysis (Anova)

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[*] Schooling in Brazil is at present compulsory from 6 to 14 years old, at what will be here named "elementary" (*fundamental*) school (6-10 primary, and 11-14 middle school), soon to be extended to preschool (4-5) and secondary school (15-17). The term "basic education" refers to all these plus early childhood education (ECE), i.e., to education from 0 to 17 years old. (TN)

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was applied to check the significance of pay differences. Furthermore, as sample population estimates (which is Pnad case) are subject to sample error, here were only retained for analysis the occupations with a sufficient sample size as to assure acceptable sample errors (coefficient ≤ 15%), according to IBGE criteria: for each occupation, IBGE supplies parameters and a regression model to estimate variance coefficients.

Pnad data also allowed deriving further information on teachers' workload, number of occupations, labour features, and *per capita* household income. These descriptions were also statistically dealt with to assure acceptable sample errors.

BASIC EDUCATION TEACHERS' PROFILE

The analysis of teachers' profile encompasses four sets of variables: (i) demographic – sex, age, and ethnicity; (ii) teacher training – education level, graduation course, graduation institution sector (public or private); (iii) working conditions – school system and sector where they teach, labour situation, weekly workload, number and kind of other occupations, number of schools, number of classes, mean number of students per class; and (iv) socioeconomic – *per capita* household income. Results are shown on Tables 1 through 4.

DEMOGRAPHIC FEATURES

Table 1 first shows data related to sex: female teachers are the great majority (81.6%) among basic education teachers. This proportion varies along the school tiers: while they are 96.8 in ECE, in secondary school they are 64.2%, male teachers being more numerous (this had already been noticed by Gatti & Barretto, 2009, using data from 2006 Pnad).

As to age, only 8% of teachers are young (up to 25 years old); the largest group (33.7%) is the one aged 26-35. There are larger proportions of younger teachers (51.2% up to 35 years old) in the initial schooling years and of older teachers in secondary education.

As to skin colour (table 2), almost two thirds (61.8%) of teachers were self-declared white, and 36.6% afro-descendant. But it should be noted that 37.9% of teachers did not inform ethnicity at Inep School Census. However, when these proportions are compared to those of the population in general (collected by Pnad), a neat difference may be seen between the two distributions among the ethnic groups, in detriment of afro-descendants; that is, the latter become teachers almost 30% less than the proportion that corresponds to their distribution in the general population. This might have implications in teachers (mostly white) reportedly having difficulty dealing with racial prejudice situations in class, as found by Guimarães (2010).

TABLE 1

DEMOGRAPHIC AND LABOUR DATA ON BASIC EDUCATION TEACHERS, BRAZIL, 2009

Variable		Number*	Frequency (%)	School tier where works (%)			
				ECE	Elementary		Secondary
					Primary	Middle	
Sex	Female	1 609 273	81.6	96.8	91.2	72.8	64.2
	Male	363 060	18.4	3.2	8.8	27.2	35.8
Age group	to 25	157907	8.0	11.6	6.7	6.9	5.6
	26-35	664292	33.7	39.6	32.9	32.7	31.8
	36-45	646887	32.8	32.0	35.5	32.8	33.1
	46-55	396 504	20.1	14.2	20.1	21.7	23.1
	over 55	106 743	5.4	2.7	4.8	5.9	6.5
Education level	Elementary	1 246	0.6	1.3	0.5	0.2	0.1
	Secondary	623 729	31.6	49.8	36.5	16.4	8.6
	Higher education	847 831	43.0	32.6	40.2	52.8	55.4
	Specialization	459 330	23.3	16.6	22.5	29.0	32.4
	MA or PhD degree	28 986	1.3	0.2	0.4	1.6	3.4
Specific teacher training?	No	69 8375	35.4	52.8	39.0	19.0	12.7
	Yes	1 273 958	64.6	47.2	61.0	81.0	87.3
Graduated in	Public institution	554 032	41.5	32.2	38.1	43.2	45.4
	Private institution	782 115	58.5	67.8	61.9	56.8	54.6
No. of schools where works	One	1 514 106	76.8	81.4	76.2	60.4	55.5
	Two	374 729	19.0	16.9	20.7	30.2	32.1
	Three	64 128	3.3	1.2	2.4	7.2	9.2
	Four or +	19 370	1.0	0.4	0.7	2.1	3.1
No. of classes to which she/he teaches	1-3	1 096 093	35.8	89.4	75.7	10.3	8.6
	4-6	315 938	14.8	4.0	8.4	29.6	20.4
	7-10	274 307	16.2	2.7	6.3	28.7	30.0
	11-15	178 557	18.8	1.9	4.6	19.5	25.0
	Over 15	107 438	14.5	2.1	5.0	11.9	16.0
Mean no. of students per class	up to 10			18.2	8.3	2.6	1.5
	11-20			45.1	28.0	12.3	7.8
	21-25			21.5	25.4	14.8	9.7
	26-30			9.2	22.4	22.7	17.4
	31-40			5.1	15.2	42.3	48.1

				0.9	0.6	5.2	15.4
	Over 40			0.9	0.6	5.2	15.4
	Federal	14,089	0.7				
	State	549,844	27.9				
	Municipal	846,162	42.9				
School system where works	Private	347,151	17.6				
	State and Municipal	124,631	6.3				
	State and private	48,408	2.5				
	Municipal and private	34,648	1.8				
	State, Mun., and private	5,421	0.3				
	Other	1,979	0.1				

* Totals by school tier: ECE (early childhood education) = 374,568; Elementary school = 1,418,839 (primary = 714,273; middle = 704,566); Secondary school = 459,179.

Source: 2009 School Census micro data

Searching for an explanation, we analysed data on education level (in schooling years) for each ethnic group in the Brazilian adult population (aged 24-65, estimated total 101.2 millions), relying on the same 2009 Pnad. And concluded that such difference may at least in part be explained by the lesser access to education by afro-descendants: while almost half (49.7%) of the white population show at least 11 schooling years (having reached secondary school), and 16.0% at least 15 years (having completed higher education), these proportions are respectively 32.1% and 5.4% among Brazilian afro-descendants.

TABLE 2

ETHNIC DISTRIBUTION (%) OF TEACHERS AND OF THE GENERAL POPULATION – BRAZIL, 2009

Skin Colour/Race	Population*	Teachers**
White	48.2	61.8
Black or mulatto	51.1	36.6
Asian	0.5	1.0
Indigen	0.2	0.6

Source: * 2009 Pnad data; N = 191,736,790; ** 2009 School Census data; n valid answers = 1,223,521

TEACHER EDUCATION

As may be seen on table 1 concerning teacher education level, while 31.6% have completed secondary school, most of the teachers (67.6%) have higher education qualification (including 43% graduates, 23.3% specialists and 1.3% with MA or PhD degrees).The proportion of non-graduates is higher at those tiers where teachers with

secondary education certificate can legally work: 51.1% at ECE and 37% at primary school. However, 16.6% of middle-level and 8.7% of the secondary level teachers do not meet the minimum qualification requirements (according to the Law #9394/1996*). Furthermore, Brazilian law on teacher qualification requires that, after graduating, future teachers attend specific teacher training courses (*licenciatura*) at the university department of Education; but the table shows that only 64.6% of all teachers are properly certified to provide good-quality teaching (the highest proportion of them – 87.3% – teach at secondary schools). Further studies should be carried out on teacher training, in order to unveil the magnitude of "hidden scarcity", that is, the number of teachers working at certain level or discipline without the corresponding qualified teacher status (GATTI ET AL., 2010). A detailed analysis per State, school tier and discipline may be done based on School Census data.

Most teachers (58,5%) have attended private higher education institutions. Public universities' participation (41.5%) in teacher education differs along the school tier: 32.2% in early childhood education, 38.1% in primary school, 43.2% in middle school, and 45.4% in secondary schools. Again, further studies might analyse, from the point of view of public policies, the effects of the teacher education sector (private or public) on teaching. Anyhow, since public universities are renowned for their stricter selectivity of entrance process and good quality teaching, it may be considered a positive information that 42% of the teachers are certified by these institutions.

TEACHERS' WORK

Table 1 also brings some data on objective aspects of teachers' work. A relevant but well-known information is that the Brazilian state, through its municipal, State, or federal administrative structures, is the greatest employer of basic education teachers: 82.4% from over 1.97 million teachers work in public schools. Among these, 77.9% teach only in public schools. Only 17.6% of teachers work exclusively at private schools. Table 1 also shows that 10.9% of teachers work for more than one school system. School Census data on students show that the distributions of students and teachers between the public and private sectors are similar: among the 52.6 million students counted, 86.1% attended public schools and 13.9%, private ones.

In view of the wide differences between the country regions, data on teachers' labour conditions were broken down by great region (North, Northeast, Southeast, South, and

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* Known as LDB, for *Lei de Diretrizes e Bases da Educação Nacional*, the country's Education Act (TN)

Centre-West). The analysis of this same distribution across the regions (Table 3) shows that there is a higher proportion of teachers in the private sector in the Southeast (28.4%); the North is in the opposite situation, with only 10.5% – which follows not only the students distribution but, also, the distribution of household income per region. It's worth mentioning that the size of the private school sector in Brazil is a function of the household income profile. Thus, due to the deterioration of public schools' both quality and image, as well as to a mythicisation of private schools' quality, parents who can afford it tend to enrol their children in private schools – often to their mistake, for the teaching pattern across the private sector is quite uneven.

TABLE 3

DISTRIBUTION (%) OF TEACHERS' LABOUR CONDITIONS ACROSS THE COUNTRY'S GREAT REGIONS – BRAZIL, 2009

Variable	Brazil	Great Region				
		North	North-east	South-east	South	Centre-West
School sector *						
Public	77.9	89.5	82.7	71.6	78.5	77.3
Private	17.6	7.9	13.4	22.8	17.1	18.8
Public and private	4.5	2.6	3.9	5.6	4.4	4.0
Type of contract **						
Public servant	53.8	59.5	50.5	53.5	56.5	56.6
Regularly contracted	23.2	12.2	18.2	28.9	25.4	19.1
Not contracted	23.0	28.3	31.3	17.5	18.1	24.3
Weekly workload (hours)** †						
1 - 19	5.4	2.7	6.2	6.5	3.1	3.8
20 - 25	27.1	23.8	39.4	22.4	23.7	16.8
26 - 39	16.3	13.4	8.0	24.3	11.0	15.5
40	36.6	45.9	35.5	27.9	51.2	50.6
over 40	14,7	14,1	10,8	18,8	10,9	13,3
Number and type of occupations**						
Only teaching	89.9	92.1	86.6	91.5	89.2	93.4
2 occupations: main one teaching, secondary non-teaching	5.9	5.9	7.8	4.7	6.5	3.8
2 occupations: main one non-teaching, secondary teaching	4.2	2.0	5.5	3.9	4.2	2.7

| Monthly household per capita income **						
up to 1 minimum wage (mw)	21.1	28.5	42.5	10.3	6.2	14.2
over 1 to 2 mw	34.6	37.6	34.2	34.3	35.5	33.1
over 2 to 3 mw	18.8	17.8	11.4	22.7	22.1	22.1
over 3 to 5 mw	16.7	12.2	7.4	21.4	25.7	16.0
over 5 mw	8.7	3.9	4.5	11.2	10.5	14.6
Participation (%) of teacher's income on total household income, per type of household **						
Couple with no children	45.2	57.1	44.2	42.1	43.9	44.3
Couple+all children under 14	46.1	52.2	47.2	42.8	42.6	45.0
Couple+all children 14 or older	33.2	38.9	33.5	31.2	29.7	36.6
Couple+children under & over 14	43.2	50.2	46.8	35.7	37.8	45.8
Mother+all children under 14	61.3	63.9	59.3	56.2	65.3	72.7
Mother+all children 14 or older	46.9	49.2	44.4	46.3	50.0	52.1
Mother+children under & over 14	55.8	56.5	55.8	41.9	47.6	71.4
Other	66.1	71.8	60.2	67.5	67.8	69.2

Source: * 2009 School Census data, N= 1,972,333; ** 2009 Pnad data, N = 2,647,860; † refers to teaching workload only when teaching is the main or the sole occupation; not included those who reported teaching as secondary occupation

A curious observation is that, though 82.4% of teachers work in public schools, when deciding on their children's school they do not necessarily choose a public one. Pnad data[5] show that almost 40% (39.8%) of teachers' children study in private schools. As shown in Graph 1, this proportion also varies across the regions. Within each region, some States show still higher proportions: Amapá (46.7%) in the North; Ceará (50.1%) and Sergipe (72.3%) in the Northeast; Rio de Janeiro (57%) and São Paulo (53%) in the Southeast; Rio Grande do Sul in the South (41.3%); and the Federal District (79.6%) in the Centre-West region. The Federal District, which houses the capital Brasília, presents the best quality indicators of basic public education in the country; even so, it shows the highest rate of teachers' choice of private schools for their children. As the Federal District is also the place where teachers' pay is highest, this reinforces the previous thesis that the option for private schools is directly linked to family income.

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5 Data on 3,399 students, the children of public school teachers, a representative sample from an estimate population of 1.61 million.

GRAPH 1

SECTOR TO WHICH BELONG SCHOOLS ATTENDED BY CHILDREN OF PUBLIC SCHOOL TEACHERS, BRAZIL AND GREAT REGIONS, 2009 (%) (N=1,609,733)
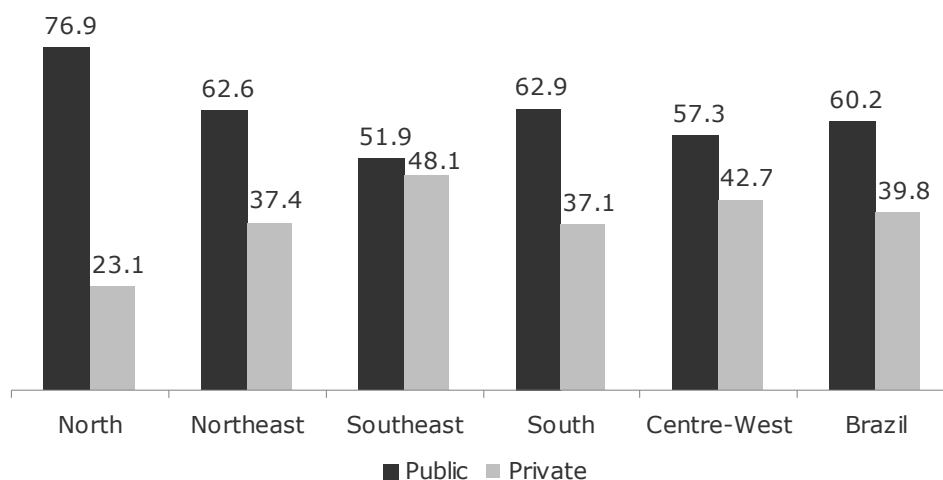
Source: 2009 Pnad micro data

Data on the sector where teachers work are relevant, for they show that issues related to teaching working conditions, including pay, which will be dealt with ahead, can not be dissociated from the financing situation of States and municipalities, concerning their tax capacity and the priority level assigned to investment in education. On the latter issue, the recent institution of financing funds (Fundef in 1998, replaced by Fundeb from 2007 on) has mitigated the problem of unequal tax capacity among States and municipalities and within each State (between State and cities school systems); but it has not solved the question of education investment priority, since it still considers values per student neatly lower than those of other countries with similar and even lesser income than Brazil (OECD, 2009).

Concerning the labour situation of teachers, Table 3 shows that 53.8% are public servants and 23.2% are regularly contracted; but the alarming proportion of 23% of teachers work with no formal labour ties, there included precarious contracts and other temporary labour arrangements, which constitutes a hindrance both for the implementation of an attractive career plan, and of schools' consistent pedagogical projects. One example is the State of São Paulo, with one of the country's largest school systems, where this is the case of about half of the teachers.

The aforementioned issue of teachers' weekly working hours requires further comments. Studies commissioned by the World Bank (see, for example, LIANG, 2000) argue that teachers earn less than other professionals because they work less hours per week –

failing to consider the nature of teaching activities. After all, being a teacher is not just giving classes: imagine for instance a Physics teacher of 20 classes with an average 40 students per class who have two weekly Physics classes – the teacher thus apparently working 40 hours per week (see number of classes and of students per class on table 1). What about the time she or he spends in planning classes and reviewing over 800 students' works and tests?

Teachers' answers to the Pnad questionnaire, as argued above, are dubious: one can't tell whether the time spent in extra-class activities was included. Our hypothesis here is that, when answering, the teacher considers the time spent in school, either properly giving classes or doing other activities. By examining Table 3 data, then, a workload concentration may be noticed into two patterns: 27.1% make up what might be called a half-time workload (between 20 and 25 hours per week) and 36.6% of teachers work full time (40 hours per week). It is of great concern that further 51.3% of teachers work *more* than 40 hours per week. If our hypothesis is correct, then the numbers of hours declared are not compatible with high-quality teaching. Since Law #11738/2008 establishes that a third of the full workload must be spent in extra-class activities, then we would have over 70% of teachers working 39 or more hours per week – which fully denies the alleged teachers' lesser working time.

The number of classes to which she/he teaches, especially in the case of one-discipline teachers, as well as the number of students per class, as suggested by the example above, also influence the amount of weekly extra-class workload. The number of classes per teacher is directly linked to the school tier (Table 1): in ECE and primary school, where usually one teacher is in charge of a class, the vast majority of teachers (89.4% and 75.7%, respectively) "have" 1-3 classes, whereas in middle and secondary schools, with specific teachers per discipline, numbers grow: 30% of secondary school ones teach to between 7 and 10 classes, and over 40% from 11 to over 15 classes. The number of students per class is a key factor in the discussion of education quality and adequate teacher's working conditions. Table 1 shows that nearly half (45.1%) of the ECE teachers have between 11 and 20 children per class; however, 36.7% have classes with over 20 children, which is not reasonable, having in mind the learning process of children under 5 years old. Similarly, 63.7% of the primary school teachers face classes of over 20 students. Middle school classes are usually larger; but while just over half of the classes have up to 30 students, 47.5% have over 30 students. Finally, as to secondary classes, nearly half (48.1%) of the teachers face classes of 31 to 40 students each, and in 15.4% of the cases there are more than 40 students per class. This variable has a strong impact on system functioning costs, thus having a bearing on financing policies: it is a key variable in educational planning that prioritises

efficiency in using resources, to the detriment of efficacy and effectiveness of teaching (COOMBS; HALLAK, 1972).

In addition to these aspects of teachers' workload, a recurrent issue in debates on teaching conditions refers to teachers who, in search of higher pay, work in more than one school*. In many cases, this negatively affects her or his work. As shown on Table 1, most teachers in general (76.8%) work at only one school. Still, 18.6% of ECE and 18.6% of primary teachers work at more than one school. On the other hand, of middle (39.6%) and secondary school (44.5%) teachers, who usually teach only one discipline, it may be expected that they fill up their weekly workload by giving classes in different schools.

Another teachers' strategy to increase income is to have a parallel occupation. Besides the fact that this is not a positive indicator of career attractiveness neither social reckoning, it may evidently affect quality of teaching. Table 3 shows that this is the case of 10.1% teachers in the country; broken down by region, data show that this proportion is lowest in the Centre-West (6.6%) and above the national mean in the Northeast (13.4%). In addition, the Table also shows that 4.2% have another main occupation, teaching being their secondary job. For those 155 thousand teachers with two occupations, teaching being the main one (5.9% of all teachers), according to Pnad, the most frequent secondary occupations are: instructors of non-curricular courses (10.3%); school supervisors, principals, and similar (9.5%); higher education teachers (5.9%); salespeople at shops or supermarkets (6.3%). That is, to the exception of the latter, most are somehow linked to education. The others are distributed across a wide range of occupations.

SOCIOECONOMIC ASPECTS

Concerning teachers' socioeconomic status, Table 3 shows that about a fifth of Brazilian teachers live in households of up to one minimum wage (mw) *per capita*; the largest proportion (34.6%) group earns up to 2 mw; and about a fourth has earnings over 3 mw. Region variations, however, show wide discrepancies. In the Northeast, for instance, 42.5% of teachers' households earn one or less mw, while in the Centre-West, the proportion of households with such earnings is 14.2% (10.3% in the Southeast and 6.2% in the South). In these regions where teachers' households are wealthier, almost one out of every three earn over 3 mw.

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* This is feasible in Brazil for most schools open for two shifts (mornings and afternoons) – some also in the evenings. Thus a primary teacher may work "full time" in two different schools. (TN)

Table 4 presents a socioeconomic ranking of 32 "professionals of sciences and arts". 2009 PNAD collected data on a representative sample of 14,4 thousand of such professionals, out of a total of about 7,03 million subjects. Occupations were sequenced following the pondered mean proportion of each occupation subjects in five levels of monthly household per capita income (in minimum wages, mw). At the time of Pnad data collecting, the mw was R$ 465.00. This variable was taken as socioeconomic indicator. The table shows that basic education teachers rank 27th, just above social workers, interior designers or scenographers. At the top of the ranking are professions that are historically taken as high-status in Brazilian society, such as medical doctors, dentist surgeons, lawyers, higher education teachers, engineers, and architects. These data point to career attractiveness: according to Gatti *et al.* (2010), among these professions are precisely the ones most aimed at by final-grade students when looking forward to university entrance. Still according to this study, many youth reported no whish to become teachers because they associate the profession to low pay and low social recognition.

Information on teachers' socioeconomic status as compared to that of other professionals, by drawing on schooling and pay level, are the main descriptors used by Anglo-Saxon research on social position and mobility (SIRIN, 2005)[6], thus being necessary for the discussion on teachers' pay, presented in next section. One can't tell whether a teacher earns much or not without making this comparison. All the more so that, in capitalist societies, education is the key element to qualify for work (or for higher-prestige occupations) from which pay derives, that is to say, education and pay are both cause and effect of a person's socioeconomic standing (ALVES, SOARES, 2009).

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[6] A classical study on the subject is Duncan's (1961). Several others followed, presenting methodological improvements, such as Hollingshead (1975), Stevens & Featherman (1981), White (1982), Osborn (1987), Nakao & Treas (1992), Ganzeboom, De Graaf & Treiman (1992), Ganzeboom & Treiman (1996), and Cirino *et al.* (2002).

TABLE 4

TOTAL NUMBERS AND SOCIOECONOMIC RANKING OF PROFESSIONALS "IN SCIENCES AND ARTS", BRAZIL, 2009

Rank	Professional	N Population*	Monthly household *per capita* income (%)					Mean**
			up to 1	+1–2	+2–3	+3–5	+5	
1	Medical doctor	273,379	-	1.5	4.9	10.8	82.8	4.7
2	Dentist surgeon	183,465	0.9	6.3	10.9	24.1	57.7	4.3
3	Higher education teacher	257,843	1.4	8.0	8.8	22.6	59.2	4.3
4	Electronic engineer & sim†	82,816	0.4	2.9	19.2	27.5	50.0	4.2
5	Architect	83,889	0.8	7.5	10.2	31.3	50.2	4.2
6	Mechanical engineer	88,238	0.8	6.1	19.0	20.0	54.2	4.2
7	Civil engineer & sim	138,333	3.0	7.7	13.4	26.9	49.0	4.1
8	Biologist & sim	42,357	3.3	8.6	17.9	25.1	45.1	4.0
9	Lawyer	548,122	2.3	13.1	14.4	26.0	44.2	4.0
10	Psychologist. psychoanalyst	113,930	2.4	10.0	19.1	26.7	41.8	4.0
11	Journalist	52,667	0.9	16.2	15.0	25.1	42.9	3.9
12	Physiotherapist & sim	136,620	0.9	12.9	22.4	28.4	35.5	3.8
13	Manager	109,469	3.8	13.2	17.0	27.4	38.6	3.8
14	Agronomist & sim	40,050	5.1	17.9	9.4	26.8	40.7	3.8
15	Veterinarian	38,628	3.2	13.8	18.7	28.4	35.9	3.8
16	System analyst	228,643	2.4	16.8	17.4	29.0	34.3	3.8
17	Economist	103,198	5.6	17.3	17.7	21.7	37.6	3.7
18	Accountant, auditor	317,062	4.0	21.4	19.9	19.5	35.2	3.6
19	Pharmacist	79,708	3.8	18.9	20.3	32.2	24.8	3.6
20	Higher-education nurse & sim	241,389	3.4	21.7	22.1	29.0	23.9	3.5
21	Human resources professional	109,633	8.2	25.7	16.3	25.0	24.8	3.3
22	Marketing & publicity professional	217,615	12.9	21.8	18.3	22.1	24.9	3.2
23	Nutritionist	58,217	7.7	26.4	19.9	29.1	16.9	3.2
24	Bilingual executive secretary	87,147	7.1	27.5	22.3	24.2	18.9	3.2
25	Physical educator	120,418	14.9	31.3	18.2	21.9	13.8	2.9
26	School supervisor, principal & sim	280,253	14.5	31.2	20.6	19.9	13.8	2.9
27	Basic education teacher	1,909,466	13.3	34.1	21.6	20.3	10.7	2.8

28	Social worker & sim	163,833	20.0	30.8	16.4	21.1	11.6	2.7
29	Interior designer, scenographer	52,474	27.3	25.3	16.0	12.3	19.0	2.7
30	Industrial designer, sculptor, painter & sim	333,828	37.7	35.2	9.8	8.1	9.2	2.2
31	Broadcast speaker, commentator	44,149	36.9	31.9	15.4	10.4	5.4	2.2
32	Religious cult minister, priest & sim	162,134	41.2	30.9	14.1	9.8	4.0	2.0

*Estimated number of professionals; ** mean number of professionals at each per capita income range pondered by the weight (1 to 5) assigned to each range; the mean was taken as a standardized indicator (1 to 5) for the profession ranking; † & sim = and similar. Source: 2009 Pnad micro data.

TEACHERS' PAY

Table 5 presents teachers' mean income following their educational level and the school tier in which they work, distributed among the five great regions. In the Northeast, as may be seen, their pay is lowest, while in the other regions values are quite similar. In Centre-West region data for the Federal District were not included, as they tend to raise artificially the regional mean (values for the FD are presented further on).

TABLE 5

MEAN TEACHER SALARY* PER EDUCATION LEVEL, SCHOOL TIER, AND GREAT REGION, BRAZIL, 2009

Education level	School tier in which teacher works	Brazil		Great Region (in R$)				
		N	R$	North	North-east	South-east	South	Centre-West**
Higher	ECE	115,949	1,273	1,015†	1,088†	1,360	1,330†	1,228†
	Primary school	333,377	1,565	1,436	1,186	1,596	1,785	1,567
	Middle school	453,762	1,710	1,716	1,468	1,621	1,804	1,592
	Secondary	416,353	2,029	2,112	1,719	2,051	2,051	1,937
Secondary	ECE	110,536	758	815†	608	788	946†	720†
	Elementary school	224,116	1,083	1,184	836	1,313	1,368†	1,239†
Lay	ECE and elementary	36,398	883	-	-	-	-	-
All basic education teachers		1,714,158	1,565	1,587	1,246	1,608	1,664	1,554

Income from teaching work only when teaching is the main or the sole occupation for a 30-hour and + weekly workload; not included those who reported teaching as secondary occupation; ** Excluding the Federal District; † values with high variation coefficient in relation to the estimate teacher population; thus, a according to IBGE parameters, subject to sample error and low reliability. Source: 2009 Pnad microdata

Considering the school tier where teachers work, it may be seen that, the younger the student, the lower the teacher's income, which is in accordance with findings by Sampaio *et al.* (2002) and Gatti & Barretto (2009). Incomes of ECE teachers with only secondary schooling are below the wage bottom-line established by Law #11738/2008. In order to teach both in middle and secondary schools, teachers must have higher education; however, table 5 shows that secondary school teachers have a slightly higher (18.6%) income than that of middle school ones. This may be linked both to a longer weekly workload and to the fact that the private sector tends to assign salaries according to the school tier, while the public sector considers only the teacher training level.

On table 6 incomes are also broken down to sector and type of school system (State or municipal). Data bring down the myth that the private sector pays better salaries; this is true only at secondary schools. In the country as a whole, private schools pay less than the public sector; and the States pay the highest salaries.

TABLE 6

TEACHER MEAN INCOME PER EDUCATION LEVEL, SCHOOL TIER, SCHOOL SYSTEM AND REGION, BRAZIL, 2009

School tier	Education level	School System	Total number, Brazil	Income (R$)*					
				Brazil	Region				
					North	North-east	South-east	South	Centre-West**
ECE	Higher	Municipal	61,051	1,294	1,047†	1,062†	1,438	1,487†	922†
		Private	33,675	991	742†	883†	1,091†	946†	1,175†
	Secondary	Municipal	5,328	1,059	967†	815†	873†	1,150†	-
		Private	53,513	908	645†	476†	685†	706†	741†
Primary school	Higher	State	87,184	1,627	1,760†	1,439†	1,384	1,833†	1,970†
		Municipal	187,010	1,523	1,328	1,275	1,664	1,834	1,476†
		Private	50,485	1,230	927†	794†	1,722	1,318†	1,054†
Middle school		State	186,363	1,763	2,033	1,717	1,590	1,809	1,856
		Municipal	201,624	1,511	1,389	1,405	1,604	1,855	1,309
		Private	53,673	1,528	1,422†	1,273†	1,793	1,624†	1,326†
Secondary school	Higher	State	292,557	1,821	2,153	1,554	1,850	1,775	1,908
		Private	66,380	2,267	-	2,226†	2,229	3,082†	2,100†
All basic education teachers		State	648,068	1,736	1,987	1,544	1,667	1,747	1,846
		Municipal	681,192	1,349	1,214	1,144	1,531	1,641	1,270
		Private	322,388	1,290	1,036	989	1,573	1,426	1,412

* Income from teaching work as the sole or main occupation, for a 30-hour and + weekly workload; not

included those who reported teaching as secondary occupation; ** Excluding the Federal District; † values with high variation coefficient in relation to the estimate teacher population; thus, according to IBGE parameters, subject to sample error and low reliability. Source: 2009 Pnad micro data

Furthermore, it's only in secondary school that teachers earn around R$ 2,000.00 (and over this, in the private sector in most regions), which is close to the value of the "necessary minimum wage" estimated by Dieese[7].

On Table 7 teachers' salaries are broken down by State, showing broad differences across the country. These may be linked to several regional or local factors – tax capacity, local labour market, cost of living, education and teaching career historical background, number of retired teachers etc. – which point to the complexity of negotiations on teachers' pay policies such as the national bottom-line salary.

Out of the 27 federation units, in 12 States the teachers with secondary-level training are paid below the present national bottom-line, R$ 950.00 (Rondônia, Acre, Tocantins, Piauí, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, and Goiás). As shown on Table 1, almost a third of all teachers (about 623.7 thousand) are secondary-level trained and should not earn below the minimum. Considering that data for the present article were collected before national bottom-line salary updating (on January 1st, 2010) these data reinforce the importance of the law that determines the minimum pay and, at the same time, throws doubt on its efficacy.

As to teachers with higher-education level, Table 7 shows 10 States where their mean salaries are below R$ 1,500.00 (Rondônia, Tocantins, Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, and Minas Gerais). In others (Amazonas, Santa Catarina, Goiás and Bahia), the mean varies between R$ 1,500.00 and R$ 1,600.00; in others still (Pará, Sergipe, Rio de Janeiro, Mato Grosso do Sul and Mato Grosso), between R$ 1,600.00 and R$ 1,800.00. And in Acre, Espírito Santo, São Paulo, Paraná and Rio Grande do Sul, mean salaries range from R$ 1,800.00 to R$ 2,000.00. In these 24 States mentioned, thus, the salaries of full-time teachers with higher-education level are below the "necessary minimum" estimated by Dieese. In Roraima and Amapá, former territories, the higher salaries may be explained by the fact that many teachers are still paid by the federal government, which

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7 Dieese (Inter-Union Department of Socioeconomic Studies) carries out a regular survey on a basic-item basket prices to estimate the "necessary minimum wage" to meet the Brazilian worker needs. In September, 2009 (Pnad reference data date), this amounted to R$ 2,065.47 (Dieese, 2009).

relieves the pressure on State and cities funds. It is in the Federal District (FD), however, that these teachers earn best (mean R$ 3,092.00), which is due to the fact that, again, the federal government is in charge of its education system. These higher values, anyway, must in part be relativised, since the FD experiences one of the highest costs of living in the country.

Finally, teachers' mean income was analysed in the context of some professions that require similar workload and qualification. Pnad collects information on over 500 occupations; the ones shown on Table 8 (attached) were selected in three stages. First we chose professions from the already mentioned IBGE-defined occupation group "professions of arts and sciences", which in practically all cases require higher education; then from the "secondary level technicians", which require specific training in technical or professionalizing track, similarly to teachers who qualified at teacher training courses in secondary schools. In addition, eight occupations were chosen to which no specific training is required; they were selected for their large population (hence corresponding to great numbers of vacancies in the labour market), for consisting in common, daily-life activities (bank clerks, shop assistants, policemen), and for their relatively low social prestige. A further criterion was applied, referring to the possibility of representative estimations for the general population, as not all occupations listed in Pnad corresponded to a sample of adequate size for making inferences. So, besides the 8 above mentioned, our list had 35 higher education professions and 39 secondary-level ones. However, due to lack of space, some occupations in similar fields and with similar pay were excluded. Table 8 (attached) lists then 23 professions of sciences and arts, 16 of secondary level, and 8 occupations with non-specific requirements, totalling 47 occupations.

In addition to these criteria, the interpretation of Table 8 data must consider the broad variability of income values (the standard deviations are shown) in a large country where the labour market is highly heterogeneous, subject to regional and local factors and influences (which can be noticed, in the teachers case, in Tables 5 through 7). Anyway, the median values show that the mean supplies a satisfactory income description for most occupations.

TABLE 7

TEACHERS' MEAN INCOME* ACCORDING TO TEACHER EDUCATION LEVEL PER REGION AND STATE, BRAZIL, 2009

Region	Federation Unit	N	Education level	
			Higher	Secondary or lay
North	Rondônia	16.174	1.360	913[**]
	Acre	6.650	1.883[**]	687[**]
	Amazonas	26.852	1.566	1.083[**]
	Roraima	6.257	2.275[**]	1.837[**]
	Pará	70.968	1.774	985
	Amapá	10.022	2.405	1.370[**]
	Tocantins	20.065	1.466	884[**]
	Region	156.988	1.705	1.077
Northeast	Maranhão	35.825	1.391[**]	998[**]
	Piauí	32.755	1.404[**]	819[**]
	Ceará	71.585	1.489	730
	Rio Grande do Norte	26.420	1.369	700[**]
	Paraíba	22.586	1.338[**]	782[**]
	Pernambuco	67.310	1.284	593
	Alagoas	23.574	1.428[**]	508[**]
	Sergipe	19.038	1.723[**]	886[**]
	Bahia	104.089	1.518	897
	Region	403.182	1.445	777
Southeast	Minas Gerais	152.079	1.411	1.009
	Espírito Santo	24.858	1.872	691[**]
	Rio de Janeiro	132.349	1.771	1.036
	São Paulo	408.709	1.821	1.331
	Region	717.995	1.692	1.130
South	Paraná	102.300	1.844	1.004[**]
	Santa Catarina	73.433	1.594	1.160[**]
	Rio Grande do Sul	86.734	1.842	1.171
	Region	262.467	1.782	1.118
Centre-West	Mato Grosso do Sul	18.384	1.731	-
	Mato Grosso	29.248	1.738	972[**]
	Goiás	63.384	1.592	848[**]
	Federal District	32.307	3.092	1.101[**]
	Region	143.323	2.124	1.047

* Income from teaching work as the sole or main occupation, for a 30-hour and + weekly workload; not

included those who reported teaching as secondary occupation; ** values with high variation coefficient in relation to the estimate teacher population; thus, according to IBGE parameters, subject to sample error and low reliability. Source: 2009 Pnad micro data

Table 8 (attached) presents each selected occupation estimated population distributed along five ranges of weekly working hours; the salary values presented refer only to the professionals who work at least 30 hours per week. Data plainly show that teachers' mean salaries are lower than those of professionals with similar training level, thus explicitly showing the limited attractiveness of the teaching career, mainly for higher-educated teachers. Thus a higher-educated teacher of secondary schools ranks 20th in the list, with earnings that are about half of an economist's or lawyer's, whose professional training or workload does not justify such discrepancy.

Among higher-education occupations, teachers make up the group with the lowest salaries, along with physiotherapists (of similar income to that of secondary-school teachers) and social workers (of similar income to that of middle-school teachers).

As to the teaching career economic attractiveness, it must be noted that secondary-school teachers would have a choice of occupations that pay better (such as insurance broker or tax inspector); for higher-educated early childhood and elementary school teachers (respectively ranked 36th, 27th, and 31st) many better-paying occupations are available, with even lower qualification required (not all of them included in table 8). Among higher-educated teachers, the worst situation is that of ECE ones, which constitutes a serious hindrance to ECE personnel policies challenges[8].

Teachers who were certified upon completing secondary school all have mean salaries below R$ 1,000.00 (below R$ 800.00 at ECE), thus lying at the basis of the pyramid, along with nursing & health care technicians, guards or gatekeepers, shop assistants, or hygiene and beauty workers.

In addition to the descriptive results presented, Table 8 also shows the results of the Anova test to check whether significant differences could be found between mean teachers' income and that of other professions – considering that this was a probabilistic sample. Results showed that, among higher-education occupations, significant differences were found between mean teachers' income and that of doctors, higher education teachers, civil engineers, lawyers, accountants and auditors, dentist surgeons, system analysts, economists, managers,

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[8] Further discussion on ECE recent challenges may be seen in Kramer (2006) and Kramer & Nunes (2007).

architects, and agronomists. In secondary-level occupations, teachers' income is significantly lower than that of tax officers and inspectors, real estate brokers, military police privates and corporals, insurance brokers, bank cashiers, accountancy and labour safety technicians, and fashion designers. In order to illustrate the test results, table 8 shows the lower and upper limits of occupations mean incomes, considering a 95% confidence interval.

These data point to the magnitude of the effort to be made in order to put in force the new National Education Plan – NEP* –, whose goal 17 establishes that mean income of higher education teachers must be similar to that of other professionals with equal education level. As seen here, teachers with higher education tend to have incomes equivalent to – or even lower than – secondary-educated professionals; income of teachers with the latter education level are similar to other professionals' who only completed elementary school. Even considering workload differences, income gaps are striking. In the particular case of some ECE and primary school teachers who work only one shift, thus apparently working part-time, it is evident that non-face-to-face working hours – for planning, reviewing etc. – are not included in the weekly working hours. If such time is counted, than, as may be seen on Table 8, these teachers' workload is very close to that of other professionals, turning income differences still less acceptable.

When analysing together tables 4 and 8, further information arises: that teachers' monthly per capita household income is compatible with the aforementioned differences, i.e., that the limited family income hinders access to cultural goods that are central both for their training and their good teaching performance.

These findings obviously have a negative impact on career attractiveness. As is well known, when well-prepared students enter university, a key element in their career choice is the profession potential pay, either initial or average pay – which refers to career organization. Students then will scarcely feel inclined to become teachers. As Pinto (2009) shows, initial teachers' pay equals that of professions which require far less qualification (accountancy technicians, sales representatives in the case of higher-educated secondary school teachers, or drivers and postmen, in the case of secondary-level teachers), in accordance with the present findings. No wonder then that the secondary students interviewed by Gatti *et al*. (2010) have shown both a surprised admiration for those (few) who decided to become teachers, and a stern resistance to opt for this career, viewed as implying much hardship, having scarce social recognition, and ill-paid.

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* As Law Project #8,035/2010, the plan is at present under appreciation by the National Congress.(TN)

FINAL COMMENTS

The present findings from the analysis of 2009 Pnad and School Census show that most basic education teachers in Brazil have teaching as their main occupation and source of income, work mainly in public schools, and earn salaries lower than those of professionals with similar educational level.

Concerning NEP goal of equalling teachers' pay to that of professionals' with equivalent training, this means practically doubling teachers' present mean salaries. Since teachers payment corresponds to over half of school systems costs, this implies a significant broadening in public expenditures in education. The same NEP pleads for the country to expand public expenditures in education so as to reach 7% of GNP in 2020 – which would mean an important growth, in view of the present 4.5%. However, the Plan does not explicit the rhythm of growing expenditures neither its distribution amidst the federation, the States and municipalities. This represents a setback in relation to the document approved at the 2010 National Conference on Education, which had defined 7% of GNP for 2011, reaching 10% in 2014, and had stipulated that each federation unit should contribute in direct proportion to its tax revenue. In other words, the more an instance collects – which in the case, is the federal government – the higher its participation in expanding investment in education.

The findings also point to the importance of a pending decision at the Supreme Court on the constitutionality of a federal law that establishes a minimum of working hours to be assigned to teachers for extra-class activities (and explicitly included in their salaries). As a judge (mean monthly income R$ 14,648.00) can not be paid exclusively for the time spent in court, so must not a basic education teacher (mean monthly income R$ 1,565.00) have the weekly workload and pay defined solely by the spent within class.

Once these two issues – adequate pay and workload that includes extra-class work, to be done at school – are settled, which may encourage both the option for the career and full dedication to teaching, we believe that the necessary, though not sufficient, conditions are given for a sharp increase in quality of basic education.

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ATTACHMENT

MEAN MONTHLY INCOME (R$) FOR 30-HOUR OR MORE WEEKLY WORKLOAD FOR SELECTED PROFESSIONS, BRAZIL, 2009

Rank	Main occupation	EL*	Estimated population N	Income (R$)**					Weekly hours workload (%)‡				
				Mean	CI †		SD	Median	30	30-35	36-40	41-44	44+
					lower l	upper l							
1	Medical doctor	1	220,872	6,140	5,794	6,486	3,753	5,100	9.9	10.8	22.1	3.9	53.2
2	Higher education teacher	1	195,491	4,467	4,229	4,704	2,407	4,200	21.3	8.7	47.1	4.2	18.8
3	Civil engineer & sim	1	116,362	4,428	4,111	4,744	2,487	4,000	5.9	9.2	45.1	13.7	26.1
4	Tax inspector, officer	2	51,685	4,115	3,494	4,737	3,244	3,000	2.2	17.9	65.8	2.7	11.3
5	Agronomist & sim	1	32,689	3,683	3,133	4,233	2,167	3,400	11.7	7.0	59.4	3.1	18,8
6	Accountant, auditor	1	285,944	3,602	3,329	3,876	3,392	2,400	3.1	5.3	52.6	16.8	22.2
7	Lawyer	1	429,174	3,583	3,384	3,782	2,976	2,700	13.4	17.5	38.9	6.6	23.6
8	Economist	1	93,967	3,570	3,120	4,021	3,199	2,500	1.9	4.8	63.9	14.5	15.0
9	Dentist surgeon	1	149,058	3,450	3,200	3,700	2,096	3,000	13.1	15.8	35.6	8.5	27.0
10	System analyst	1	205,897	3,282	3,059	3,506	2,310	2,500	3.3	5.9	60.6	16.6	13.6
11	Manager	1	96,370	3,242	2,914	3,570	2,405	2,400	1.1	6.5	59.8	12.0	20.5
12	Architect	1	68,903	3,162	2,804	3,520	2,141	2,500	12.4	15.6	45.2	2.5	24.4
13	Biologist & sim	1	32,394	3,012	2,377	3,648	2,483	2,200	15.2	16.5	52.6	3.4	12.3
14	Journalist	1	41,482	2,445	2,042	2,848	1,998	1,900	12.3	17.1	36.1	11.0	23.6
15	Psychologist, psychoanalyst	1	79,006	2,352	2,142	2,561	1,364	2,000	23.6	16.7	41.5	5.1	13.1
16	Real estate broker	2	135,247	2,291	2,119	2,463	1,481	2,000	13.5	9.7	27.1	9.8	39.9
17	Pharmacist	1	68,137	2,197	1,978	2,415	1,285	2,000	5.8	5.3	42.2	13.7	33.1
18	Higher-education nurse	1	214,895	2,189	2,081	2,297	1,123	2,000	4.5	11.1	45.4	10.9	28.1
19	Insurance broker	1	78,056	1,997	1,747	2,247	1,549	1,500	9.5	7.9	48.0	13.4	21.1
20	Secondary school teacher	1	395,846	1,916	1,847	1,985	1,012	1,700	23.2	10.8	41.3	4.2	20.5
21	Physioterapist & sim	1	99,900	1,826	1,699	1,953	908	1,600	20.7	21.6	34.0	4.8	19.0
22	Military police corporal or private	3	268,714	1,744	1,691	1,797	668	1,650	2.0	3.8	39.2	9.6	45.4
23	Bank cashier	3	88,628	1,709	1,567	1,850	934	1,500	1.0	32.9	51.3	5.7	9.1
24	Chemistry technician	2	54,809	1,664	1,482	1,845	952	1,500	3.3	4.5	44.9	27.0	20.3
25	Labour safety technician	2	99,964	1,626	1,481	1,772	1,053	1,200	4.5	1.9	36.0	29.6	28.1
26	Accountant technician	2	111,795	1,606	1,468	1,743	1,074	1,300	7.7	9.7	47.9	18.6	16.1
27	Middle school teacher	1	434,802	1,603	1,549	1,657	830	1,400	30.2	14.1	36.6	4.2	14.8
28	Construction technician	2	31,018	1,590	1,347	1,833	1,020	1,300	4.7	8.0	41.3	24.0	22.0
29	Social worker & sim	1	129,958	1,576	1,445	1,707	1,107	1,275	10.5	14.8	53.5	7.1	14.1
30	Fashion designer & sim	2	184,972	1,463	1,345	1,580	1,128	1,111	9.0	6.8	36.3	21.7	26.2
31	Primary school teacher	1	320,532	1,454	1,400	1,508	704	1,300	31.0	14.5	38.3	4.5	11.8
32	System programmer technician	2	221,995	1,399	1,302	1,495	1,041	1,000	9.3	6.8	43.7	20.0	20.2
33	Telecommunications	2	74,703	1,380	1,222	1,537	957	1,115	0.8	6.8	43.0	26.5	22.8

#	Occupation	EL	Population	Mean	Low†	High†	SD	Median					
	technician												
34	Postman & sim	3	71,721	1,293	1,201	1,386	562	1,200	0.7	2.1	62.6	21.9	12.7
35	Computer operator	2	52,652	1,244	1,056	1,431	1,009	809	19.7	10.5	38.3	8.4	23.0
36	Higher-education ECE teacher	1	107,991	1,208	1,109	1,307	702	995	30.2	17.2	40.8	2.2	9.6
37	Clinical analysis technician	2	47,284	1,156	1,011	1,300	707	879	12.3	9.6	46.8	13.5	17.9
38	Public transport driver	3	386,810	1,087	1,062	1,111	351	1,070	2.6	3.9	21.5	21.4	50.6
39	Production control technician	2	164,287	1,055	974	1,136	714	800	0.4	1.6	28.7	44.2	25.1
40	Office clerk & sim	3	2,702,186	1,014	997	1,032	690	800	8.7	10.8	49.3	18.2	13.0
41	Elementary school teacher	2	213,202	997	949	1,045	524	900	47.1	8.6	32.9	2.7	8.8
42	Nursing & health care technician	2	574,009	978	952	1,003	462	850	5.7	10.1	42.6	12.4	29.1
43	Guard, gatekeeper	3	601,183	881	861	901	373	800	2.2	3.5	34.1	14.4	45.7
44	Shop assistant	3	4,956,249	735	725	744	495	600	9.8	5.3	18.5	22.8	43.6
45	Hygiene & beauty worker	3	938,650	722	700	743	485	600	30.1	13.2	17.9	5.1	33.7
46	Secondary-education ECE teacher	2	103,438	702	662	743	313	610	40.9	17.2	33.2	1.8	6.8
47	Health care & environment techn.	2	385,496	685	660	710	361	560	4.4	8.6	72.8	3.3	10.8

* EL = Education level required: 1 = higher education; 2 = secondary technical education; 3 = other; ** Mean income for a 30-hour and + weekly workload (just for comparison: in September, 2009, mw = R$ 465.00); SD = standard deviation; † High and low limits of the confidence interval at 95%; ‡ Population distribution (%) in ranges of weekly workload in hours; & sim = and similar. Source: 2009 Pnad microdata