

# The Personal Benefits of *Stricto Sensu* Post-Graduation: an Analysis According To Masters of Accounting

## Abstract

Higher levels of instruction generate greater economic benefits, according to the theory of Human Capital. Personal benefits are important for the Master's program because they can be used as evidence for the candidate, the government and the course manager to make decisions on the course, the government and the course itself manager. The overall objective is to evaluate the benefit of post-graduation studies, on a personal level, according to the perception of their graduates. The survey, limited to Masters graduated from Universidade Federal de Santa Catarina, assesses situations of benefits with the help of variation coefficients. The financial benefits ranged from 0.54 to 9.65 monthly minimum wages, with a weighted average of 3.19 monthly minimum wages. There was significant variation in income after the course for 43.48% of the Masters. The Master's program generated effective financial benefit in only three circumstances: Masters who also hold a Ph.D.; Masters with public positions that pay more because of holding degrees; and Masters gaining a low income before the program who today work in teaching only.

**Key words:** Post-graduation. Theory of Human Capital. Economics of Education.

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## 1. Introduction

Education is usually a good way to guarantee and increase people's income. In Brazil, the increase in personal income arising from higher education (educational bonus) is the largest among the 32 countries surveyed by the Organization for Economic Cooperation and Development - OECD, and is 50% higher than in the second country (Hungary) in the same ranking (OECD, 2013). The educational bonus is attractive and encourages investments in education in the country but, on the other hand, reveals the lack of qualified workers in the market. A recent study shows that Brazilians whose highest level of education is a Master's degree receive an average pay 84% higher than those who only completed higher education (MANAGEMENT STUDIES CENTER AND STRATEGIC - CGEE, 2013).

Salvato, Ferreira and Duarte (2010) observe, in view of the data from different regions of Brazil, that, in fact, income is directly proportional to education, which reinforces the idea that the income differential can be explained by the difference in years of education or schooling.

In developed countries, educational policies are adopting economic approaches in teaching and research results. Hence, there is an increasing demand for evidence-based educational policies, that is, higher or lower investments in a particular field are only possible based on the evidence of results (Machin, 2014).

According to the evidence-based policy, the government can then make its decisions based on the pooling of information from products (graduates) and results of each area and educational program (Chapman, 2013).

In the National Education Plan (2011-2010), the Brazilian government predicts, in higher education, an increase in quality by expanding the role of Masters and Ph.D. graduates in higher education institutions to at least 75% at least of the active faculty, 35% of whom should hold a Ph.D.

More specifically in *stricto sensu* post-graduate studies in Brazilian Accounting, a study provides evidence on factors that change with the degrees of Master's and Ph.D. in Accounting. Cunha (2007) used a group of experts in his doctoral thesis, applying the Delphi technique, to reach factors such as respectability; academic and professional acknowledgement; professional distinction; academic spirit; personal maturing; academic production; career opportunities; professional autonomy; cognitive skills; analytical competences; employability; prestige; productivity; professional mobility; social responsibility; status; remuneration; social promotion; job security; lifestyle; and personal accomplishment/satisfaction that change with the Ph.D. degree in Accounting. These can also be considered possible personal benefits gained from the course.

This information from the post-graduate products in Accounting (graduates) can be used as evidence for decision-making, whether by the government, the program or the candidate for the course. To do so, they need to have quality, range and reliability to serve as a reference.

It is important to have studies in several post-graduate programs in Accounting for the sake of comparison of results and approaches to the problem.

Depending on the activity sphere, the area of knowledge, the region, among others, the benefits can be less or more attractive. In this sense, we propose the following question: *What is the benefit of stricto sensu post-graduate studies, on a personal level, according to the perception of their graduates?*

To answer the research question, the general objective was to evaluate the benefit of post-graduate studies, on a personal level, according to the perception of their graduates.

The criteria of importance, originality and feasibility are also observed (Castro, 1977).

The importance for the development of the study is the contribution of perceptions about the theory of Human Capital and the economics of post-graduate education, and also in the social context, as support is needed for possible candidates to *stricto sensu* post-graduate Accounting education to choose the program or not, based on evidence of results and scientifically proven data. This study also helps in the evaluation of investments in the course, in addition to the selection process, at least in this *stricto sensu* post-graduate program.

This research is unique, as no studies were identified that address the benefits of *stricto sensu* post-graduate programs in Accounting, although some show factors that change with the Ph.D. and Master's degree and others bring a sense of personal financial return investment in Master's education in general.

The feasibility criterion is met due to the access to the graduates' contact information and the tools used.

It should be clarified that this research is limited to investigate the *Stricto Sensu* Post-Graduate Program in Accounting from the Federal University of Santa Catarina, located in Southern Brazil.

Regarding the time frame, the research involved the Masters who responded and graduated since the foundation of the course in 2004 until July 7<sup>th</sup> 2014.

## 2. Theoretical Framework

### 2.1 The Theory of Human Capital

The Theory of Human Capital explains the relationship between education, work and income. Education plays an important role in increasing the methods of work, in productivity and in the income of workers.

Lima (1980) explains the Theory of Human Capital with its systematics. Individuals seek education, because it has the main effect of changing their skills and knowledge. With increased instruction, skill and cognitive productivity also increase. Thus, with increasing productivity, people can receive higher incomes, which generates more capital.

The first and most well-known studies cited regarding the Theory of Human Capital include the studies by Schultz (1961) advocated for the compatibility of dignity and freedom, in the understanding that man can be seen as capital; Becker (1964), who applied the utility theory to the relationship between education and human capital; and Mincer (1958), who identified the income rises deriving from education. There are other studies, such as Blaug (1976) and Ben-Porath (1967), contributing with alternatives, showing the role of investments in the education of people.

Frigotto (2003) suggests that a marginal increase in instruction, training and education corresponds to a marginal increase in individual production capacity. The expansion of skills and the improvement of the quality of work are investment modalities that rest on education. According to Machin and Stevens (2004), the Theory of Human Capital can be understood as an investment in education, increasing the future productivity of the individual and bringing other private and social benefits. Estimates of private and social returns of education and the effectiveness of the courses can be used to guide the allocation of resources in the public sector, in the candidates' and also in the course coordination's decision-making.

Robeyns (2006) explains that the Theory of Human Capital is linked mainly to economic changes (increased income and economic growth) and is exclusively instrumentalist. The author argues that the benefits and capacities deriving from education are, in theory, multidimensional and comprehensive models that develop several also intrinsic and not only economic functions. The intrinsic goal of educational policies is to develop people's social capacity; the economy, in that case, can be a mere consequence.

### 2.2 Benefits of Education

From the end of the last decade, studies related to the economics of education have grown exponentially. Machin (2014) points out six reasons for increased research on the economics of education: increase in higher levels of education; a growing base that shows investments in education as a synonym for economic development and increasingly broad social outcomes over time; other areas researching on the theme education/economics; the methodological innovations that are adapting better to various issues involving the economics of education; more and better quality of data; and the search for evidence-based education policies.

Lordêlo and Verhine (2001) discussed the economic benefits of individual and social investments in master's and doctoral courses for college faculty. The results showed that the courses are great investment options for the higher education market, with the exception of professionals with part-time dedication to the institutions and multiple employment bonds, implying the sacrifice of high income when opting for the courses. Even for these exceptions, however, the course may have been positive in psychological and social terms.

According to Coates and Edwards (2011), in Australia, the average salary of employees with post-graduate degrees increased from \$ 38,000 to \$ 60,000 Australian dollars in the first five years after completing of the course (58% increase). Within five years, the salary for 50% of the graduates ranged from U\$47,726 to U\$78,000. It is a favorable outcome, compared to the average salary, which corresponded to U\$46,332 for all workers in Australia at that time.

Oreopoulos and Salvanes (2011) explain that the social returns from education can be much greater than the financial, which is the focus of most studies related to the economics of education. In this sense, the social returns may not be taken into account as they should, since they are so great, or even greater than the effect of education on financial income.

Menon, Pashourtidou, Plycarpou and Pashardes (2012) found that graduates who completed post-graduate education have a better chance of finding a job after graduation than others. This result suggests that students tend to underestimate the potential benefits of a post-graduation degree, at least with regard to the probability of employment.

This study is limited to the accounting area, which also has some studies related to the benefits of post-graduation programs in Accounting, explained below.

Martins and Monte (2009b) drew a profile of Masters graduated from the Multi-Institutional and Inter-Regional Post-Graduate Program in Accounting at UNB / UFPB / UFPE / UFRN, whose average remuneration perceived by the respondents at the time of their entry was R\$3,968.31 (76.04% comprised of activities related to the market and 23.96% of activities related to the academy). The mean salary of Masters in Accounting in 2009 was R\$7,486.97, still composed mostly by remuneration from the market (67.44%).

Cunha, Cornachione Junior and Martins (2010) identified significant changes in 19 factors that can be influenced by doctoral degrees in Accounting, including social factors, obtained by consulting experts through the Delphi technique. All social and economic factors (respectability, academic and professional acknowledgement, professional distinction, academic spirit, personal growth, academic production, career opportunities, professional autonomy, cognitive skills, analytical skills, employability, prestige, productivity, job mobility, social responsibility, status, remuneration, social promotion, job security, lifestyle and personal achievement/satisfaction) were evaluated positively by the graduates from that Ph.D. program, although some less intensely.

This is one of the few existing studies about the interrelations between higher levels of education and social and economic benefits for the student/graduate. By entering the Ph.D. program, the respondents sought to pursue or enhance the research career, in addition to getting a better level of income, among other factors. The effects of the degree were observed in the quality of life and professional and social opportunities. As for income, the effects were quite pronounced: 41.5% received an income of up to R\$5,000 when they entered the Ph.D. program, already at the time of that survey, while 93.1% of Ph.D. graduates received an income superior to R\$5,000.

Martins and Hill (2010) investigated the motivations, expectations and influences related to obtaining the master's degree in accounting in the Multi-institutional and Inter-Regional Post-Graduate Program in Accounting at UNB/UFPB/UFPE/UFRN, based on reviews and perceptions of its graduates.

As the theoretical background, the authors used the theory of human capital, the *stricto sensu* post-graduate programs at Master's level in Brazil and post-graduate programs in Accounting. The results showed that the main variables that motivated respondents to join the master's program were "getting more knowledge", "getting professional distinction" and "expansion of employment opportunities".

When graduated, the main expectation the graduates achieved was "getting more knowledge", followed by "expansion of general education" and the "training in research".

The authors also investigated the main factors the degree influenced, namely: professional maturity; respectability and academic/professional acknowledgement; and academic spirit. One of the conclusions was that the title positively influences the graduates' academic and professional performance, confirming the assumptions of the Theory of Human Capital as to the increase in their employability, productivity and income potential.

Dallabona, Oliveira and Rausch (2013) identified the personal and professional advancement of graduates from the Post-Graduate Program in Accounting from the Universidade Regional de Blumenau related to getting the Master's degree.

From the sample of 48 graduated Masters, 17 have less than five years of teaching experience. After graduating, 38 Masters teach at private institutions, 17 of whom teaching full-time. Other results indicate improvement in the payment rate after graduation, in which 31 respondents receive up to R\$ 4,905.00. Most of the teachers participate in activities involving research, extension projects and hold administrative and management positions in educational institutions.

The authors also investigated the factors of relevance in the decision to take the Master's program and the influence of the degree on the academic and professional performance. One of the conclusions was that, in general, the master's degree provided personal and professional advances to the graduates from the Master's program in Accounting.

### 3. Method

#### 3.1 Methodological Procedures

The overall objective, the research problem, the philosophical conception (positivist), the type of strategy (survey) and methods to put this strategy in practice (questionnaires and statistical analysis) indicate a quantitative approach (Creswell, 2010). Martins and Theóphilo (2007) explain that the quantitative study organizes, summarizes and interprets features of the numerical data collected.

According to Gil (2002), the advantages of surveys are the direct knowledge of reality, economy, speed and quantitation.

The target population of the study comprises all Masters from the PPGC until July 7th 2014. The number of Masters totaled 91 graduates. All Masters graduated since the foundation of the course are taken into account. As the population is small, the researchers have tried to undertake a general census.

In total, 46 questionnaires were effectively answered, not permitting the generalizations of the analyses of results and conclusions which, moreover, are exclusive to the master's in accounting at UFSC, i.e. not suitable for generalizations of this and other populations, which denotes the limitation of this research. The purpose is to get parameters, comparisons and know the situations of possible personal benefits.

The research is performed in a certain period of time. Because of these limitations, the results are an excerpt from the reality of the problem and cannot be considered as definitive answers to the problem. Because of the importance of the study and lack of similar research, the limitations of the population, access to graduates from other programs, other regions and time periods do not invalidate the study.

### 3.2 Procedures For Literature Review

Articles related to the research theme were systematically selected. The purpose was to obtain the studies already developed, based on ProKnow-C (Ensslin, Ensslin, Lacerda & Tasca, 2010; Bortoluzzi, Ensslin, Ensslin & Valmorbida, 2011; Lacerda, Ensslin & Ensslin, 2012; Ensslin, Ensslin & Pinto, 2013; Ensslin, Ripoll-Feliu, Ensslin & Dutra, 2014; Tasca, Ensslin, Ensslin & Alves, 2010; Silva, Ensslin, Ripoll-Feliu & Soler, 2014).

The articles were collected in May 2013, updated in September 2014, all available electronically.

Finally, the full reading of the articles resulted in material that contributed to the construction of the theoretical framework used in this study and served as support for the other sections.

In the composition of the sections, references were used cited in the articles that make up the portfolio, but only in cases when the author had access to the original source. Some studies not taken from the screening were also cited for being considered relevant and/or useful in the construction of this study.

### 3.3 Procedures for Data Collection and Analysis

Questionnaires were sent via e-mail with a brief presentation. After one week, a reminder was sent to people who had not yet responded in order to obtain a larger number of respondents. The graduates' alternative e-mails obtained through the Lattes Platform were also tried. In cases of greater difficulty to locate the graduates, contact by telephone or social network was chosen.

The questionnaires were subject to a pretest to assess their functionality and also the quality of data, also in order to verify possible correlations and consistency. Then, the questionnaire was tested but this time in the study sample, in order to consolidate the research instrument with a more reliable construction of the chain of evidence. Data collected from the questionnaires were typed and processed in Excel®. The data collection and analysis in this type of study are inextricably linked, due to the unpredictability of correlations and associative characteristics of the variables.

Pozzebon and Freitas (1998) explain that the exploration of relationships between variables can generate differences, similarities and correlations that constitute different categories. Thus, there is more wealth in the construction of a chain of evidence. To this end, the context of each situation cannot be lost. Thus, inferences can be made on associations between categories and consistency and reliability are achieved in the results.

From the financial point of view, an equation is built  $Z_i = \beta_1 X_1 - \beta_2 X_2 + \varepsilon_i$  where  $Z_i$  is the dependent variable of total economic benefits, which is basically explained by two independent variables ( $X_1$ ,  $X_2$ ). The independent variable  $X_1$  symbolizes the income subsequent to graduation, while  $X_2$  is the income of the master's candidate (prior to admission).  $\beta_1$  and  $\beta_2$  are the parameters estimated according to the results of the groups ( $i$ ) and also the length of the career (length of contribution or labor age).  $\varepsilon_i$  represents the effect of the random error of possible observations or variables not covered by the proposed model, and also represents a limitation of the proposed model. This system also aims to assess the chances of financial feasibility for potential groups of graduates from the post-graduate program.

In the test, and also at the beginning of the data analysis, the characteristics of the research subjects or responses that lead to discrepancies in the results were investigated. To address these discrepancies, Coefficient of Variation tests were used both in the collection and in the analysis.

Semaan, Cruz, Brito and Ochi (2012) suggest that cluster analysis can be applied to identify groups within a data set, or to identify the optimal number of groups by assessing some index or coefficient. The purpose of this approach is to generate results and more accurate and well-founded conclusions.

Also according to Pozzebon and Freitas (1998), research involving modeling and quantitative data should give importance to the process of explaining the methods clearly, presenting every step and declaring the assumptions, logics and choices used in the conduct of each investigation. The goal is to meet this argument so that research can be replicated in other studies.

It is noteworthy that the adopted procedures aimed to minimize distortions in different types of income (teaching, market) and in different periods (before, during and after the Master's). These distortions of time, inflation and annual minimum wage in most studies identified do not appear to have been taken into account, giving the impression that the financial benefits are "fantastic" when, in fact, they can be largely temporal variations.

Only after tabulating all the updated amounts for the year 2014 it is that we proceeded to the analysis of the data. For questions involving income before and after the master's program, the Pearson correlation and the econometric test of difference between two means were calculated. This test served to investigate whether the differences between the averages of the before and after income variables are statistically significant. The confidence interval was 90% ( $\alpha = 0.1$ ) for all variables and the statistic used was Student's t-test.

In addition, variations are observed variations in previous rents and later, by social strata, according to the classification of the IBGE, as an alternative and also to compare different approaches.

Nevertheless, for certain groups of Masters, the Theory of Human Capital was not proven, as they did not obtain a better income. Thus, the increase in income resulting from the master's program, considering significance only, may not be sufficient to explain these occurrences. Therefore, the variation coefficient was also calculated by dividing the standard deviation of the responses by their arithmetic average. All variation coefficients equal to or higher than 0.30 (30%) by convention were considered high, always with a view to permitting divisions in groups with a view to richer and more reliable results, permitting a joint of quantitative and qualitative analysis.

The divisions of the Masters in rating groups were also critical to understand the cause and effect of each variable and its crossed interrelations, from the pre-test to the data analysis.

To know all the results and reasons for differences in income, subgroups are formulated, observing events in the responses to questions on teaching activities, overqualification, employments, number of bonds, and involvement (or not) of scientific research in paid activities. From these initial analysis procedures, we propose a division by groups of results and calculate the financial benefit, presented in the next section.

#### 4. Presentation and Analysis of Results

Reviews and perceptions of characteristics of respondents were surveyed and analyzed.

The age of the graduates upon completing the master's program is 31.58 years on average (age above international standards). This result corroborates the study by Dickson and Smith (2011), which reminds on the importance of the variable available service time, with lower financial return, since Masters graduated at a later age and with two more years of study would have less available service time after graduation before retirement or death.

Other important information is that only three Masters have no degree in accounting (6.52%), and even these three have related degrees (administration). This result may indicate low interdisciplinarity and mobility among courses from different areas. An economist studying a Master's program in Accounting, for example, would have the potential to open up a range of career and learning opportunities.

The continuation of the respondents' studies after the course was also questioned and the results are presented in Table 1 below.

Table 1

**Continuity of education after Master's program**

Type of course/continuity of education	Total	%
Ph.D. in Accounting	14	30,43%
Ph.D. in Administration	4	8,70%
Ph.D. in Production Engineering	2	4,35%
Specialization and/or courses in a branch of Accounting/Administration	5	10,87%
Specialization and/or courses in other areas	3	6,52%
Others (mini-extension courses, recycling)	4	8,70%
No course	14	30,43%
General Total	46	100,00%

Source: research data.

The results of continuing studies after the Master's are very varied. Among the respondents, 20 (43.48%) are taking (21.74%) or took a Ph.D. (21.74%). Among the Masters, 8 (17.39%) are taking or took specializations and/or other courses. Of those who attended specializations and other courses, 5 (10.87%) reported having attended more than one course, even in other areas. The remaining 18 (39.13%) had not yet continued their studies after the Master's or had just taken recycling and/or short extension courses.

This result may indicate the Master's as the final (long) educational stage for most of the Masters (26, 56.52% of the total), showing sufficiency in the professional context and personal achievement/satisfaction, both reaffirmed in the survey of benefits further ahead. The fact that 43.48% are in the educational stage of Ph.D. education does not deny this inference since, besides corresponding to less than half, most teaching jobs in Brazil favor and sometimes even require a Ph.D. degree for lecturers.

Activity in teaching, which is one of the main objectives of the Master's degree in Accounting at UFSC, was also questioned. Table 2 below shows the results for the 46 Masters.

Table 2

**Work or not in teaching (Masters)**

Work characteristics	Masters
Work in teaching	22 (47,83%)
Do not work in teaching	24 (52,17%)
Worked in teaching before and/or during Master's program	19 (41,30%)

Source: research data.

It is important to note that ten of the respondent Masters are still pursuing a doctorate, and only two of these teach. Nevertheless, the percentage of Masters who work in teaching is quite low compared, for example, to the results of Barth, Ensslin and Reina (2012), which reported that, of all Masters in Accounting from UFSC graduated by 2009 (34 Masters), 27 were teaching, which corresponded to 79.4%. That is quite a steep drop (35.92% decrease), but there were not so many doctoral students.

The results by Dallabona et al. (2013) suggest that 91.67% of the Masters graduated from the Graduate Program in Accounting at Universidade Regional de Blumenau work in teaching.

The low activity rate in teaching in the present study (47.83%) suggests that, at some point after 2009, the Masters graduated from UFSC could not find space in the market for teaching or found better opportunities in the labor market (beyond teaching).

In short, the master's degree in Accounting from UFSC does not seem to be a differential to refer the Masters to teaching. Corroborating this statement, 19 of the 22 Masters who work in teaching already did so before the master's. This feature is not, however, sufficient to determine the benefits or validity of the master's program in this regard, as there are several other factors to be analyzed, which are discussed further ahead.

Attempts were made to discover what motivated the Masters to take the program. The same motivations proposed by Cunha et al. (2010) were investigated. Also, the possibility was raised for respondents to cite other factors. Table 3 shows the importance of each factor.

Table 3

**Factors in decision to take Master's program (Masters)**

Factors in the option to take the Master's program	Not Relevant	Relevant
Correct shortages in undergraduate education	38 (82,61%)	8 (17,39%)
Follow/enhance teaching career	8 (17,39%)	38 (82,61%)
Follow/enhance professional career	7 (15,22%)	39 (84,78%)
Expand work opportunities	8 (17,39%)	38 (82,61%)
Gain in-depth knowledge of Accounting	9 (19,57%)	37 (80,43%)
Gain higher income	12 (26,09%)	34 (73,91%)
Gain professional distinction	2 (4,35%)	44 (95,65%)
Achieve professional/social prestige	6 (13,04%)	40 (86,96%)
Accomplishment/Personal satisfaction	3 (6,52%)	43 (93,48%)

Source: research data.

All motivational factors suggested obtained high relevance in the choice to attend the master's, except for the first (correct shortages in undergraduate program).

Martins and Monte (2010) investigated similar factors, getting more modest results (relatively lower weight) for some factors. The most relevant factor was "gain more knowledge" (88.54%). Nevertheless, all other factors were relevant to more than half of the Masters of the Multi-institutional and Inter-Regional Graduate Program in Accounting at UNB/UEPB/UEPE/UFRN. The exception was also the factor "correct shortages in undergraduate program", which scored a weight of 46.67%.

Dallabona et al. (2013) investigated similar factors in the Graduate Program in Accounting from the Regional University of Blumenau. Although the results were measured with a different approach, the factors that were relevant in the option to attend the Master's were similar. The exception was again the factor "correct shortages in undergraduate program" (35.42%).

In the decision to attend the master's or not, the financial factor obtained moderate influence as the main purpose of the master's program for them (56.52%) is more socially than economically oriented. The intensity of the return, however, is the distinctive factor in the decision to take the course for the remaining 43.48%, but only 8.70% hope to obtain significant financial return (between 20 and 30%).

The employments and sources of income are important to understand the financial results accurately, without distorting judgment on the financial returns that actually derive from the master's program or not.

The Masters received questions about this. Of the respondents, only 16 (34.68%) had more than one income source before the master's. The other 30 (65.22%) had only one source of income.

As for employments / sources of income of the Masters after graduation, the results showed changes, as shown in Table 4 below.

Table 4

**Employment bond or sources of income after Master's program**

Type of employment bond	After Master's program		
	From (10) Masters with multiple bonds	From (36) Masters with a single bond	Total individual and multiple bonds (46 Masters)
Ph.D. grantee	2 (10,00%)	8 (22,22%)	10 (17,86%)
Dependent	0 (0%)	0 (0%)	0 (0%)
Employee private sector	4 (20,00%)	8 (22,22%)	12 (21,43%)
Employee public sector	14 (70,00%)	17 (47,22%)	31 (55,36%)
Owner or partner	0 (0%)	3 (8,34%)	3 (5,35%)
Self-Employed, consultant, independent	0 (0%)	0 (0%)	0 (0%)
<b>Total</b>	<b>20 (100%)</b>	<b>36 (100%)</b>	<b>56 (100%)</b>

Source: Research data.

The main difference in employments before and after the Master's can be noticed in the public sector, to the detriment of the private sector. There was an increase of 15.68% in the public sector, and a decrease of 13.49% in the private sector. These variations are self-explanatory. These and other variations are also explained by the number of doctoral fellows who sometimes make the Masters dedicate themselves full-time to the Ph.D. program, leaving their employments.

Dallabona et al. (2013) found 79.17% of Masters graduated from Furb working in the private sphere. This result is very different from the 21.43% working in the private sector in this research. There is an apparent trend: Masters graduated from public institutions tend to remain or find employment in the public sector. On the other hand, Masters graduated from private institutions tend to remain in the private sphere. But the Masters from that program, as we have seen, are strongly active in teaching (91.67%), while a much smaller proportion (47.83%) of the Masters graduated from UFSC work in teaching, which can help to understand these large differences in employment relationships.

The benefits from the Masters were surveyed based on Cunha (2007), which identified the factors that change for the Ph.D. (adding the personal achievement factor the respondents suggested). Twenty factors were presented to the respondents who, according to the degree of relevance for each item, scored each from 1 to 10. The results are displayed in Table 5 below.

Table 5

**Personal benefits**

Personal benefits	Mean	Median	Mode	SD	CV	Min	Max
Personal Accomplishment/Satisfaction	8,93	10	9	1,25	0,14	5	10
Academic production	8,70	10	9	1,46	0,17	4	10
Academic spirit	8,65	9	9	1,48	0,17	3	10
Personal maturing	8,52	9	9	1,66	0,19	3	10
Respectability and academic/professional acknowledgement	8,39	8	8,5	1,13	0,13	5	10
Professional distinction	8,35	8	8,5	1,54	0,18	2	10
Career opportunities	8,26	10	9	1,78	0,22	2	10
Prestige	8,17	8	8	1,48	0,18	5	10
Analytic competences	8,04	8	8	1,63	0,20	2	10
Cognitive skill	8,02	9	8,5	1,73	0,22	2	10
Employability	7,93	10	8	2,08	0,26	0	10
Status	7,78	8	8	1,69	0,22	3	10
Professional mobility	7,74	8	8	1,98	0,26	0	10
Lifestyle	7,52	9	8	2,33	0,31	0	10
Professional autonomy	7,43	8	8	2,37	0,32	0	10
Productivity	7,37	9	8	2,30	0,31	0	10
Social promotion	7,09	9	8	2,43	0,34	0	10
Social responsibility	7,02	8	8	2,72	0,39	0	10
Remuneration	6,39	8	7,5	2,79	0,44	0	10
Professional stability	6,00	9	7	3,14	0,52	0	10

Source: research data.

All surveyed sectors received positive assessments, although the financial factors were found less relevant (job security, compensation). These factors also obtained the highest coefficients of variation among all factors studied. Although the evaluation of economic factors is still relatively positive, many have shown discontentment, evidenced by the high deviations and very moderate averages.

Moreover, as explained further ahead, few respondents experienced significant changes in income and also few entered the teaching career. Presenting these results in groups was considered unnecessary because these qualitative results are more general than specific (groups), unlike what happened with quantitative results that are addressed in this way.

Martins and Monte (2010) investigated these same factors in graduates from the Multi-institutional and Inter-Regional Graduate Program in Accounting at UNB/UFPB/UFPE/UFRN. The factors that received higher averages were “professional growth” (8.30) “respectability and academic/professional recognition” (8:19), “academic spirit” (8.16) and “academic research” (7.62). The factors that had a lower average in that study are “pay” (6.02), “professional mobility” (5.87), “lifestyle” (5.44) and “job security” (5.31). Overall, the results were very close since, in that study, the personal accomplishment/satisfaction factor was not investigated.

Dallabona et al. (2013) also investigated the same factors for graduates from the Graduate Program in Accounting from Universidade Regional de Blumenau. Their results were measured with another approach, but the factors that changed most and least, in function of the Masters, were the same as in Martins and Hill (2010). The teachers were also asked about the contribution of the master’s program to the current activities of the Masters. The items proposed by Cunha (2007) for the Ph.D. program are the same questioned in this research for the Masters and are listed in Table 6 below.

Table 6

**Contributions of Master's program to current activities of Masters**

Contributions to Current Activities of Masters	None	Few	Many
(Basic or applied) theoretical education of the Master's program	1 (2,17%)	12 (26,09%)	33 (71,74%)
Research experience	0 (0%)	6 (13,04%)	40 (86,96%)
Recycling of knowledge in my area	2 (4,35%)	17 (36,96%)	27 (58,69%)
Academic/professional contacts during the program	1 (2,17%)	20 (43,48%)	25 (54,35%)
Development of critical thinking	0 (0%)	5 (10,87%)	41 (89,13%)

Source: research data.

The most significant contributions of the master's to the current activities of the respondents are "development of critical thinking", "experience in research" and "theoretical education". Less significant, though relevant, are "academic/professionals contacts during the master's" and "recycling of knowledge in my field."

Cunha, Cornachione Junior and Martins (2010) investigated these same contributions to current activities, but for the doctoral level. All were also important, but the most significant was the "theoretical education", and the least significant was "academic/professionals contacts during the course."

To know the possible financial benefits of the master's, efforts were made to avoid distortions from other variables, such as previous income (inflation, annual minimum wage increases) and reasons for changes in income, such as the fact that some Masters also hold a Ph.D. The possibility of overqualification was also observed according to the studies by Barth et al. 2015, and its results were used for the subdivisions of groups addressed here.

First, an overview was provided of the sample's income, obtaining the following results:

Table 7

**General view of Masters' income in different periods (in minimum wages).**

Statistical procedure	Overall income before Master's program	Overall income during Master's program	Overall income after Master's program
Mean	6,39	5,72	9,59
Mode	3	2	3
Median	5	3	7,5
Standard Deviation	4,70	5,08	6,74
C.V.	0,74	0,89	0,70
Minimum	1	2	3
Maximum	25	25	28

Source: research data.

The Pearson correlation coefficient between the overall income before and after the program was 0.82, showing that there is a positive dependence between the values of income before and after. In other words, the higher the previous income, the greater the chances of the subsequent income being also high.

There was an increase of more than three minimum wages in overall income after the master's degree, compared with the income before the master's. With a 90% confidence interval, the critical t was  $\pm 1.68$ . Thus, income increased after the master's, which does not mean increased because of the master's, and not for most respondents.

As shown, there is great heterogeneity in incomes and in all variations, demanding further explanations and divided into groups in order to know the reasons for variations.

Another possible assumption is that there was a decline in revenues during the master's (due to the value of the full-time dedication grant).

In terms of income increase, independently of whether they are small or big, exactly 30 (65.22%) Masters obtained some increase.

The variation between the income before and after the course was exactly 50%. Several studies appointed in the theoretical framework understand this kind of change as "financial return". For the sake of comparison between programs, regions and countries, some of these variations were highlighted.

Coates and Edwards (2011) concluded that, in Australia, the variations between the earlier and later income for post-graduates amount to 58% on average.

Martins and Monte (2009a) found that there was a variation between anterior and posterior income of 88.68% for Masters graduated from the Multi-Institutional and Inter-Regional Graduate Program in Accounting at UNB/UFPB/UFPE/UFRN.

According to CGEE (2013), Brazilians whose highest level of education is the master's, receive an average pay 84% higher than those who only completed higher education.

These studies did not take into account variations resulting from the time and other variables (salary changes, inflation, type of activity, superqualification, type of bond, other courses). Such distortions are sometimes quite severe, completely altering the understanding of the results. Moreover, general wage averages do not reveal the proportion of Masters who obtained significant wage changes.

Dallabona et al. (2013) found that, of the 48 graduates from the master's program at Furb, approximately 50% had significant changes, earning incomes over 9 minimum wages. That result is very close to the result obtained in this study (in general average salaries), but the significance of those results was not calculated, nor were they divided into groups to understand the sharp variations. The same happened with the other studies cited.

According to the t statistic, at a 90% confidence interval, the rent increases that were considered significant, for this study, are the variations by at least two minimum wages. Thus, only 20 (43.48%) Masters who responded achieved significant increases to date.

Another possible approach as to the significance of the rent increases in different periods is the change in social strata (according to the Brazilian Institute of Geography and Statistics (IBGE)), exposed as follows:

Table 8

**General view of income in different periods (according to IBGE ranking of social strata)**

Class	E	D	C	B	A	Total
Monthly income	Between 0 and 2	More than 2 until 4	More than 4 until 10	More than 10 until 20	More than 20	
Before Master's program	4 (8,70%)	16 (34,78%)	18 (39,13%)	7 (15,22%)	1 (2,17%)	46 (100%)
During Master's program	22 (47,83%)	2 (4,35%)	14 (30,43%)	7 (15,22%)	1 (2,17%)	46 (100%)
After Master's program	0 (0,00%)	12 (26,09%)	18 (39,13%)	10 (21,74%)	6 (13,04)	46 (100%)

Source: research data.

It is clear here that the drop in income during the master's is mainly due to the low value of the full-time dedication grants. After the master's, none of the respondents belongs to class E anymore (up to R\$1,448); there was also a decrease by 8.69% in class D; class C remains unchanged; Class B increased by 6.52%; the biggest change was in class A, which rose 10.87% after the master's. The number of Masters who obtained significant positive changes (with change of social class) was only 20 (43.48%). Both approaches (IBGE and t test) coincidentally obtained 20 respondents with positive income changes.

When considering income only in general, the financial feasibility of the master's cannot be affirmed, not even for those who had a significant increase in income. This problem has been addressed in the research methods section. Therefore, clusters of qualitative characteristics are also necessary due to the high variation coefficients of these results and crossed interrelations. This approach is presented below.

The quantitative results relevant to the study, whose variation coefficient was considered high (superior to 0.30) were: a) income from teaching/research before master's program; b) income from teaching/research after master's; c) overall income after master's; and d) overall income before master's.

The income variation coefficients from teaching calculated were 0.52 for income from teaching after the master's, and 0.71 for income from teaching before the master's. Concerning income from teaching after the master's, for which the variation coefficient was 0.52, the possible groups were: a) main income from job in teaching/research, but without Ph.D.; b) main income from job in teaching/research, but with Ph.D.; c) secondary income (only complementary) from job in teaching/research. There are no Masters holding a Ph.D. who work in teaching as a secondary activity (merely to complement the income).

These divisions serve to approximate the distances between the responses by groups, which consequently decrease the variation coefficient, permitting better quality in the results that are presented in terms of the best approximations per possible groups.

After the division into groups, the coefficient of variation was recalculated (to justify or validate the divisions), obtaining the value of 0.20 for group a); 0.31 for group b); and 0.37 for group c). Although groups b) and c) still vary considerably, no new division was made as, if the groups were separated by activity sectors, like public or private for example, the coefficient would not drop (which means no possibility of affirming income differences between sectors of activity for these groups).

As for income from teaching/research before the master's, qualitative responses with high correlations were also investigated. Possible reasons for the high variation coefficient were listed, presented in the following breakdown by groups: a) income from multiple jobs; b) income from only one job (teaching).

After the division into groups, the variation coefficient, equal to 0.71, was recalculated, showing 0.31 for group a) and 0.27 for group b).

Due to the characteristics of a *stricto sensu* master's program, in which the main objectives are to prepare teachers and researchers, the Masters were asked about their income from teaching/research. The results were divided into groups. The results of the income before the master's program coming from teaching/research are shown below.

Table 9

**Income from teaching/research before Master's (in minimum wages)**

Statistical procedure	Income from a single bond (teaching/research)	Income from multiple bonds (teaching/research and complementary)
Mean	6,13	1,73
Mode	5	2
Median	6	2
Standard Deviation	1,89	0,47
C.V.	0,31	0,27
Minimum	4	1
Maximum	9	2
Number of respondents who fit it	8	11

Source: research data.

The main difference in income from teaching / research before the master's is the amount of remunerated activities (bonds). Other variations are explained by the workload, as no significant variations were identified between the sectors of activity (public or private).

Income from teaching/research after the master's is set out below:

Table 10

**Income from teaching/research after Master's program (in minimum wages)**

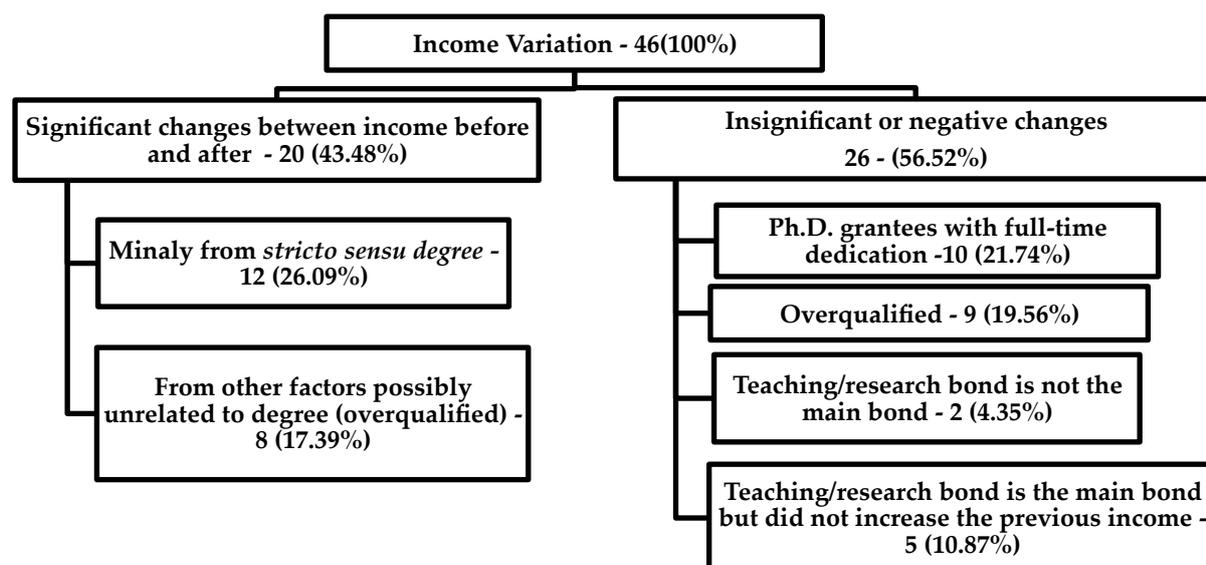
Statistical procedure	Main income from teaching/research, but HOLDS Ph.D.	Main income from teaching/research, but DOES NOT HOLD Ph.D.	Secondary income (complementary only) from teaching/research
Mean	9,75	7,43	2,86
Mode	8	8	2
Median	10	8	2
Standard Deviation	3,06	1,51	1,07
C.V.	0,31	0,20	0,37
Minimum	6	6	2
Maximum	13	10	4
Number of respondents who fit in	8	7	7

Source: research data.

The incomes of lecturers/researchers after the master's varies mainly due to the Ph.D. degree and the fact that teaching/research is, or is not, the main paid work. It is important to explain that none of the teachers working in teaching, secondarily (complementary), holds a Ph.D. Other relevant information is that no significant salary variation for lecturers/researchers between the activity sectors (public or private).

When comparing the results of main remunerated activity with the Multi-institutional and Inter-Regional Graduate Program in Accounting at UNB/UFPB/UFPE/UFRN, there is the study by Martins and Monte (2009b). The main remunerated activities of the Masters graduated in that study were related to the market (67.44%). In the present study, 31 (67.39%) of the teachers also have the market as their main activity and not teaching, which is a very close result.

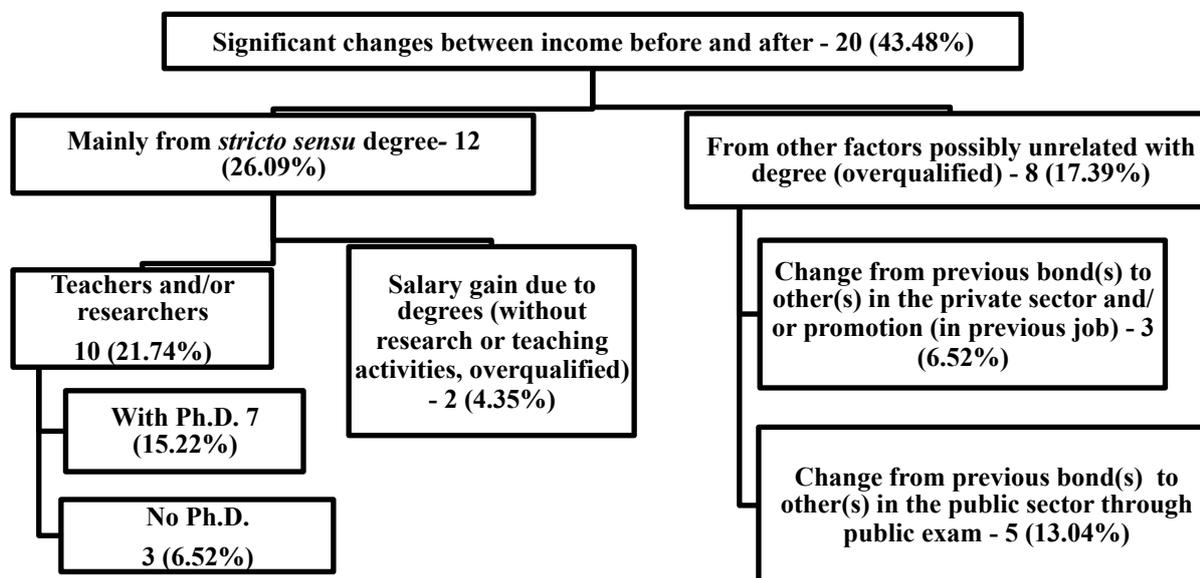
As proposed in the methods section of the research, the Masters are separated into groups in order to know in which situations the master's program brings financial benefits. Thus, the groups present divisions and results as shown in Figure 1.



**Figure 1.** Organizational chart of income variations with results of respondents per groups

Source: research data.

Less than half of respondents (43.48%) achieved financial success by attending the master's, at least momentarily. Of the respondents, 19 considered themselves overqualified (higher qualifications than required for the function they perform), and 10 belong to the group that obtained significant changes in income, according to the following subdivision.



**Figure 2.** Organizational chart of subdivisions in significant income change groups

Source: research data.

It is important to note, however, that 3 (6.52%) of the respondents who obtained salary changes not linked to the degree work in teaching as a secondary activity (negligible teacher pay), that is, their main jobs and sources of income are not teaching/research (they teach only one or two classes). In fact, they can consider themselves overqualified because, despite wanting to work in teaching, they did not achieve this satisfactorily.

It is emphasized that this is the respondents' own perception (who considered themselves overqualified), not being arbitrary, despite agreeing with these three respondents on their supposed overqualification. Possible reasons for this occurrence can be both the lack of opportunity and lower salary paid in teaching in relation to the remuneration of other activities among these respondents.

There are 8 respondents who finished their Ph.D. and are working in teaching but, as shown in Figure 2, 7 of them have achieved significant improvement in income due to teaching/research. There are 7 teachers who have no Ph.D. but are working in the teaching profession, only 3 of whom have achieved significant improvement in income. These results suggest better opportunities for those who also attended the Ph.D.

This result also suggests that the 10 doctoral fellows tend to achieve better opportunities and income when they finish the course. In other words, 21.74% (doctoral fellows) of the 46 Masters tend to have their income situation changed significantly, migrating from the group of insignificant income changes to the group of significant changes in income. Only one Ph.D. graduate is not active in teaching/research, but has a high income in the public sector.

The financial benefits are mainly affected by differences between income before and after the master's, with parameters explained in the methods section.

The financial benefits can be calculated according to equation (1):

$$Z_i = \beta_1 X_1 - \beta_2 X_2 + \varepsilon_i$$

The estimation of the parameters depends on the average for each group. The unit of measurement of all variables is also in minimum wages. The average of the income before the master's variable in the group that obtained significant changes between the previous and subsequent income is 5.90 minimum wages. The income after the master's in this same group is 12.55 minimum wages. Thus, the average amount of ( $Z$ ) can be calculated:

$$Z = 12,55 - 5,90 + \varepsilon$$

$$Z = 6,65 + \varepsilon$$

When estimating the parameters  $\beta$  for each subgroup of results, however, the amounts of the financial benefits ( $Z$ ) are distinct.

In situation 1 ( $Z_1$ ) there is the subgroup "Lecturers and/or researchers holding a Ph.D."

$$Z_1 = \beta_3 X_3 - \beta_4 X_4 + \varepsilon_1$$

$$Z_1 = 0,91 \times 12,55 - 0,92 \times 5,90 + \varepsilon_1$$

$$Z_1 = 5,99 + \varepsilon_1$$

As observed, the coefficients inform the extent to which each situation made the income vary in relation to the general average.

The financial benefits for situation 1 corresponded to 5.99 minimum wages per month, approximately. Seven Masters who fit into this situation (15.22 %).

Situation 2 ( $Z_2$ ) assesses the subgroup "Faculty and/or researchers without a Ph.D."

$$Z_2 = 0,64 \times 12,55 - 0,73 \times 5,90 + \varepsilon_2$$

$$Z_2 = 3,72 + \varepsilon_2$$

The financial benefits in situation 2 correspond to approximately 3.72 monthly minimum wages. Three Masters fit into this situation (6.52%).

Situation 3 ( $Z_3$ ) observes the subgroup "Salary increase due to holding degrees (without research or teaching activities, overqualified)"

$$Z_3 = 1,08 \times 12,55 - 1,44 \times 5,90 + \varepsilon_3$$

$$Z_3 = 5,06 + \varepsilon_3$$

Thus, in situation 3, the financial benefits correspond to 5.06 times the monthly minimum wage, approximately. Only two Masters fit into this situation (4.35%).

Situations 4 and 5 assess the group of Masters who obtained salary changes from other factors possibly unlinked to the degree. Due to the uncertainty mentioned earlier, however, the calculation is also performed for people interested who may fit into these subgroups.

Situation 4 ( $Z_4$ ) analyzes the subgroup "Change from previous job(s) to other(s) in the private sector and/or promotion (in the previous job).

$$Z_4 = 1,38 \times 12,55 - 1,30 \times 5,90 + \varepsilon_4$$

$$Z_4 = 9,65 + \varepsilon_4$$

For situation 4, the financial benefits correspond to approximately 9.65 minimum wages. Three Masters fit into this situation (6.52%).

In situation 5 ( $Z_5$ ) the subgroup “Change from previous job(s) to other job(s) in the public sector through public exam” is observed.

$$Z_5 = 1,08 \times 12,55 - 0,92 \times 5,90 + \varepsilon_5$$

$$Z_5 = 8,13 + \varepsilon_5$$

Situation 5 shows financial benefits close to 8.13 times the monthly minimum wage. Five Masters fit into this situation (13.04%).

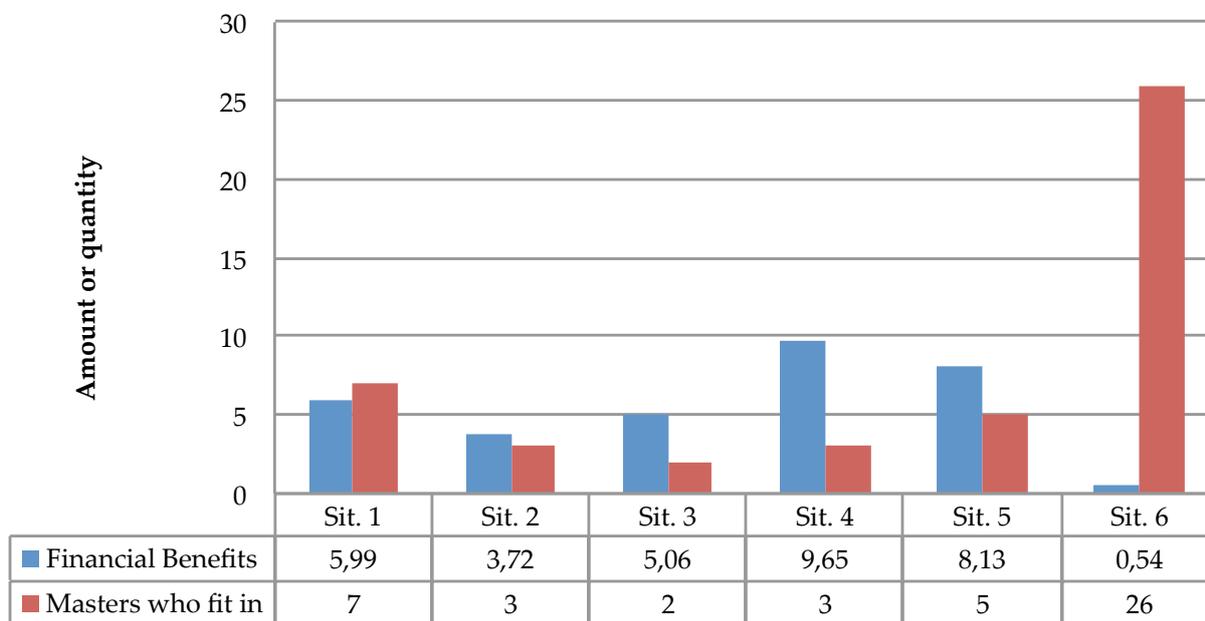
To consider the result of the financial benefits of all Masters, situation 6 is also mentioned. This is the situation of all other Masters who did not achieve significant changes in income. In these cases, the previous income averaged 6.77, while the subsequent income averaged 7.31.

$$Z_6 = 7,31 - 6,77 + \varepsilon_6$$

$$Z_6 = 0,54 + \varepsilon_6$$

Situation 6 shows that there were no financial benefits for this group, as there was no significant variation between the income before and after the master’s program (approximately 0.54 times the monthly minimum wage). Twenty-six respondents fit into this situation (56.52%). It is important to clarify, however, that 10 (21.74% of total) Masters are still Ph.D. fellows. These scholars tend to belong mainly to situation 1 when they finish their Ph.D.

Figure 3 below shows an informative summary of the financial benefit situations addressed.



**Figure 3.** Situations of financial benefits in Master’s program

Source: research data.

Figure 3 clearly shows the greatest weight of situation 6 (56.52%), followed by situations 1 and 5. When excluding the Ph.D. fellows, however, this weight would be equivalent to 34.78%. In view of the distinguished weights in relation to the number of respondents who fit into each situation, the weighted average was calculated:

$$M_p = \frac{5,99 \times 7 + 3,72 \times 3 + 5,06 \times 2 + 9,65 \times 3 + 8,13 \times 5 + 0,54 \times 26}{7 + 3 + 2 + 3 + 5 + 26}$$

$$M_p = 3,19 \text{ sm}$$

Hence, as a mere overview, the master's has an average weighted financial benefit of 3.19 times the monthly minimum wage.

As the estimated average age of graduation is 31.57 years, the estimated time to enjoy these benefits is 33.43 years (labor or contribution time before the average retirement age). Thus, the master's provides an average financial benefit of 1279.70 minimum wages throughout the career. Nevertheless, anyone interested should do the calculation according to the situations they fit into to avoid distortions, since most did not obtain financial benefits, at least momentarily.

With a 90% confidence interval ( $\alpha = 0.1$ ), the critical t is 1.68. As the answers are integer values, variations of at least two times the minimum wage are considered. Thus, we can test the hypothesis: This sample from the master's program in Accounting corroborates with the Theory of Human Capital. In this case, only 20 (43.48%) respondents exceed the critical region. That means that 56.52% of the respondents are not in accordance with the Theory of Human Capital.

Another approach is the division into groups. In this case, only 12 (26.09%) respondents exceed the critical region, taking into account evidence that the degree increased the income.

In both approaches, the null hypothesis is rejected (proves Theory of Human Capital), since more than half of teachers did not achieve a higher income, neither due to the titration nor to any other reason.

As already discussed, however, ten Masters are still Ph.D. fellows. To deepen the analysis, one can reassess the assumptions, transferring this group of scholars to the group "Significant changes" in the subgroup "Originating mainly from the *stricto sensu* degree". In this case, 22 (47.83%) would exceed the critical region. Thus, in any event, the null hypothesis is rejected, because most respondents did not achieve a significant increase in income due to the degree.

Analyzing the hypotheses by characteristics (clusters), the master's generated financial returns, according to the Theory of Human Capital, in only three circumstances: a) Masters who also hold a Ph.D.; b) Masters with public positions that pay more for holding degrees; and c) Masters who earned low income before the master's and now work only in teaching. All other clusters reject the null hypothesis, at least momentarily.

Although the approaches are different, for the sake of comparison, the study by Lordélo and Verhine (2001) was observed. The results of that study showed that the courses are great investment options, with the exception only of professionals who work part-time for the institutions and multiple employment relationships that imply high income sacrificed to opt for the courses. In fact, anyone in this situation did not obtain financial return for this research, corroborating some of the results of these authors. In this study, however, there were several other situations in which no significant financial benefits could be obtained from the master's. These were not discussed by that study, nor by the other studies identified.

## 5. Conclusion

The objective of this study was to evaluate the benefit of post-graduate studies, on a personal level, in the perception of their graduates. This research contributed to perceptions about the Theory of Human Capital and the economics of education in post-graduate courses. It also contributed to the decision making by the users of post-graduate program in Accounting, from a personal point of view, without leaving aside the particularities and variations arising from other factors unrelated to the course.

The expectations of the respondents for the master's were to reach personal achievement/satisfaction, get in-depth knowledge of accounting, pursue/enhance one's professional and teaching career, get professional distinction, expand job opportunities, increase income and achieve professional/social prestige.

The respondents associated all 20 possible personal benefits deriving from the degree positively. The main benefits in decreasing order of relevance were personal accomplishment/satisfaction; academic production; academic spirit; personal growth; respectability and academic/professional acknowledgement; professional distinction; career opportunities; prestige; analytical skills; cognitive ability; employability; status; professional mobility; lifestyle; professional autonomy; productivity; social promotion; social responsibility; remuneration; professional stability. According to the respondents, the master's offered/developed important factors for their current activities, such as (basic and applied) theoretical education; research experience; critical thinking; updated knowledge in the area; and academic or business contacts.

The course shows to be a good option as it met the expectations concerning the factors analyzed for most respondents.

The financial benefits, on the other hand, were not achieved satisfactorily for most Masters (56.52%). There were six cases of financial benefits after the master's ranging from 0.54 to 9.65 monthly minimum wages, with a weighted average of 3.19 times the monthly minimum wage. As the estimated average age of graduation is 31.57 years, the estimated time to enjoy these benefits is 33.43 years (labor or contribution time). Thus, the master's provides an average financial benefit of 1279.70 minimum wages throughout the career. Taking into account evidence that it was the degree that increased the income, only 26.09% achieved financial success as a result of the course. The other increases may be exogenous to the post-graduate studies.

The master's generated actual financial benefit only for three groups of respondents: Masters who also hold a Ph.D.; Masters with public positions that pay more due to holding degrees; and Masters who earned low incomes before the program and now work only in teaching. All other listed groups did not obtain significant financial benefits. Nevertheless, no respondent is unemployed or gaining less than three minimum wages, supporting the conclusion by Menon et al. (2012) that graduates who completed post-graduate education have a better chance of finding a job after graduation than others. This statement cannot be proven though, as this study did not involve Accounting graduates, but only Masters.

The results did not comply with the Theory of Human Capital, at least for 56.52% of the Masters. For the master's degree, more years of education have not generated economic results for that percentage of respondents. When combined with the Ph.D., however, in all cases observed, the idea was confirmed that education (even at its highest degrees) significantly increases the income of individuals.

The academic master's degree in Accounting studied here proved to be feasible from the respondents' personal point of view, but not when it comes to finance, unless accompanied by a Ph.D. There are, however, other specific cases of financial feasibility, although scarce and less likely (10.87%), as mentioned.

As suggestions for further research, we propose investigating the benefits of undergraduate education, other post-graduate programs and the Ph.D. in Accounting, based on factors and group perceptions. Moreover, it is interesting to replicate these types of studies in different programs to find better evidence for decision-making by all users of this information.

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