



MONITORING OF EGRESS OF “ESCOLA DO TRABALHADOR” IN THE BRAZILIAN FORMAL LABOR MARKET

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Abstract

The objective of this work is to follow the egress from “Escola do Trabalhador”, analyzing its dynamics in the job market. The understanding of this dynamic can be very useful for future actions within and beyond the School, including proposing new actions, and more comprehensively in the professional qualification policy. Using the official databases of formal employment, RAIS and CAGED, the performance of workers trained in the “Escola do Trabalhador” was compared to others. The results indicate that the egress from the School has achieved better results of employability in relation to others.

Keywords: *Escola do Trabalhador. Egress Students. Market of Labor. Professional Qualification.*

ACOMPANHAMENTO DOS EGRESSOS DA ESCOLA DO TRABALHADOR NO MERCADO DE TRABALHO FORMAL BRASILEIRO

Resumo

O objetivo deste trabalho é fazer um acompanhamento do egresso da Escola do Trabalhador analisando sua dinâmica no mercado de trabalho. O entendimento dessa dinâmica pode ser bastante útil para futuras ações dentro da Escola e para além dela, inclusive a proposição de novas ações, e de forma mais abrangente na política de qualificação profissional. Utilizando as bases de dados oficiais do emprego formal, RAIS e CAGED, comparou-se o desempenho dos trabalhadores que tiveram formação na Escola do Trabalhador com os demais. Os resultados apontam que o egresso da Escola tem conseguido resultados melhores de empregabilidade em relação aos demais.

Palavras-Chaves: Escola do Trabalhador. Egressos. Mercado de Trabalho. Qualificação profissional.

1 INTRODUÇÃO

The “Escola do Trabalhador” began its professional training activities in November 2017 on the World Wide Web. It is a program of the former Ministry of Labor, the current

Ministry of Economy, with the objective to fight against unemployment of Brazilian workers. The courses are online, free of charge and with no need for specific previous schooling.

The School has offered a set of courses aimed at meeting the training demands of the workers, for better training and improvement of work, increasing their chances of employability and contributing to the increase of productivity in the country, as in Brazil (2019).

In June 2019 the School offered a total of thirty-eight courses. The student begins their course soon after registering and receiving a confirmation email. Because it is a full online course, study hours are more convenient. At the end, those who complete the course with the minimum grade and answered an evaluation questionnaire receive a certificate from the University of Brasília (UnB), as an extension course.

As the courses offered by the “Escola do Trabalhador” are in the form of distance education – massive open online courses (MOOCs), which has the characteristic of having low cost. The biggest investment you make is in the design and preparation of the content, once it is ready for one student or one million students, depending only on the ability to broadcast your content. Unlike traditional education that imposes restrictions on the number of students per class, MOOCs courses in some cases have this advantage. Another advantage of these courses is that they are perennial. Once the courses and platforms are updated, they will be available on a perennial basis. As long as the concepts, contents and teaching methods are updated within the dynamics of knowledge, the courses can remain available on the platform, serving an unlimited number of new students willing to obtain that knowledge.

Capillarity in the offer of courses is another advantage of this type of professional training. People living in large national and world metropolises or those living in the most isolated places will be able to access the courses and obtain knowledge, needing only an internet access. This type of knowledge availability is considered to be the most democratic, since knowledge barriers are kept to a minimum and knowledge becomes available and equal for all.

Despite the virtues presented previously, a public policy must be effective, and it is desirable that there be observable and, if possible, measurable results. Therefore, it is inevitable that answers be searched for in this regard. The most obvious thing to know is how has been the result of egress in the job market, especially in the formal market.

Thus, the objective of this work is to follow the egress from “Escola do Trabalhador” analyzing its dynamics in the job market. This task is important so that one can have a feeling of the effectiveness of this policy, especially when comparing the performance of the student of the School with the rest of the workers in the Brazilian formal job market. The understanding of this dynamic can be very useful for future actions within and beyond the School, including proposing new actions, with more comprehensively in the professional qualification policy.

Next, a brief discussion will be presented on concepts related to productivity, professional qualification and its effects on the labor market. The method used will then be displayed. Then, the trajectory of the egress from “Escola do Trabalhador” in the formal labor market of Brazil will be presented. Last, the final conclusions will be presented.

2 BACKGROUND: PRODUCTIVITY, PROFESSIONAL QUALIFICATION AND ITS EFFECTS ON THE LABOR MARKET

Labor productivity is the result of several factors that can raise the gains by effort. Factors related to the available technology and the experience of the workers involved are some of the elements that make up the work productivity. However, the most important element for its determination is the stock of knowledge and skills that the worker possesses

and that can be used in the labor activity, thus increasing the amount of product per input used.

Borja (2012) points out that each of us brings to the job market a unique set of acquired skills, or human capital, where the capital is most acquired at school and in training programs.

At this point, Brazil faces an enormous difficulty. According to Barbosa Filho e Pessôa (2009), one of the most striking characteristics of our society is the low qualification of the population, and it is difficult to find a country with per capita income equal to or greater than ours and that simultaneously presents a lower level of schooling.

For Mendes (pp. 15, 2014) the stock of available human capital and productivity is one of the four essential factors for economic growth¹. In this work the author seeks explanations for the low growth of Brazil in the last thirty years and warns the need for public policies to be sustained in full democratic exercise and observed the institutional environment.

Ferreira e Veloso (2006) argues that the educational level of the population can affect economic growth in several ways. The most immediate is to increase the qualification of workers with that increasing their productivity. Additionally, raising the education of a worker can positively affect the productivity of their coworkers, which increases their effect on economic growth. In addition, education facilitates the absorption of new technologies and, consequently, economic growth.

It is emphasized that the importance of education in its broadest sense, for example, in its role of empowering the individual, about his freedom. This is Sen's (2000) argument that education should be offered as one of the social opportunities that influence the substantive freedom of an individual to live better. The author also points out that those things are important not only for the conduct of his private life in leading a healthier life, but also for a more effective participation in economic and political activities.

The recent advances in public education in Brazil have significantly increased the average schooling of the population; however, we still face difficulties related to learning and, being specific, basic knowledge that is fundamental to the work. From the comparative point of view with other nations the cruelest face of these difficulties is verified in the so called PISA tests.

The International Student Assessment Program (PISA) is a test carried out by the Organization for Economic Cooperation and Development (OECD) at a global level to measure students' academic achievement in math, reading and science. According to Popkewitz (2013) the study is based on the analysis of the income of 15-year-old students through standardized tests that, since 2000, are held every three years in several countries. It is considered an objective comparison system. Its formulation is subject to many criticisms, so it is a purely quantitative analysis.

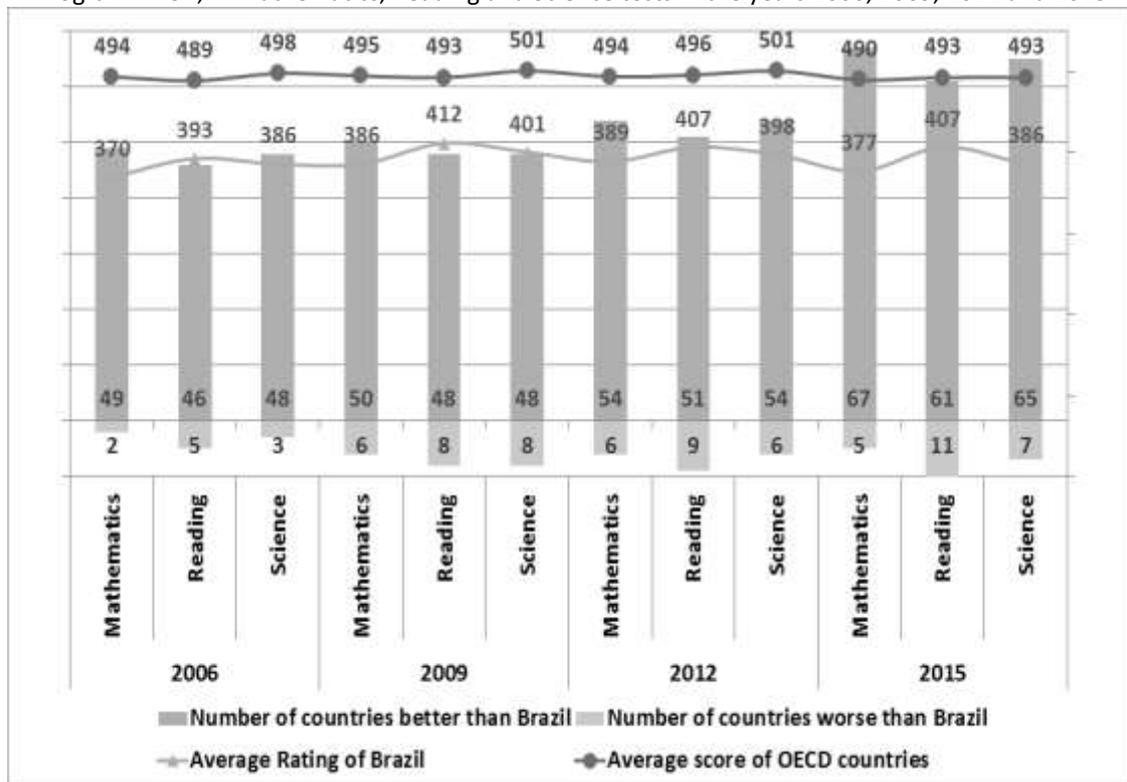
Figure 1 presents a relative demonstration of Brazil's performance in the PISA test. This figure shows, the best and worst rankings and the average scores of the OECD countries and Brazil, in math, reading and science tests between the years of 2006, 2009, 2012 and 2015.

As shown in the figure above Brazil has always ranked among the last ten places, regardless of the type of test that our students were submitted to, with the exception was the reading test in 2015, when eleven countries out of 73 were even worse off than Brazil. It is important to note that, even as the number of participating countries, and possibly countries with lower levels of development, has increased, the country has not yet improved relative participation. When we compare to the average scores of the OECD countries we find that

¹ Mendes (2014) relies on the Works of Ray (1998), Jones (2002) and Acemoglu (2000) to make such a conclusion. The other two factors required for growth would be the accumulation of physical capital (machines, roads, ports, farmland, etc.) and labor.

Brazil always presents with lower scores. In math tests we are always between 75% and 79% in comparison to other countries; in reading tests we are between 80% and 84% and in science tests we are between 78% and 80%.

Figure 1 - Relative demonstration of the performance of Brazil in the International Student Assessment Program - PISA, in Mathematics, Reading and Science tests in the years 2006, 2009, 2012 and 2015



Source: PISA (2019). Prepared by the authors

Faced with these facts, the following question arises directly: how can we raise labor productivity in the short term against the fragilities of our education? These historical educational difficulties that the country resents have a significant impact on the production of human capital knowing that a country with low human capital is a less developed country.

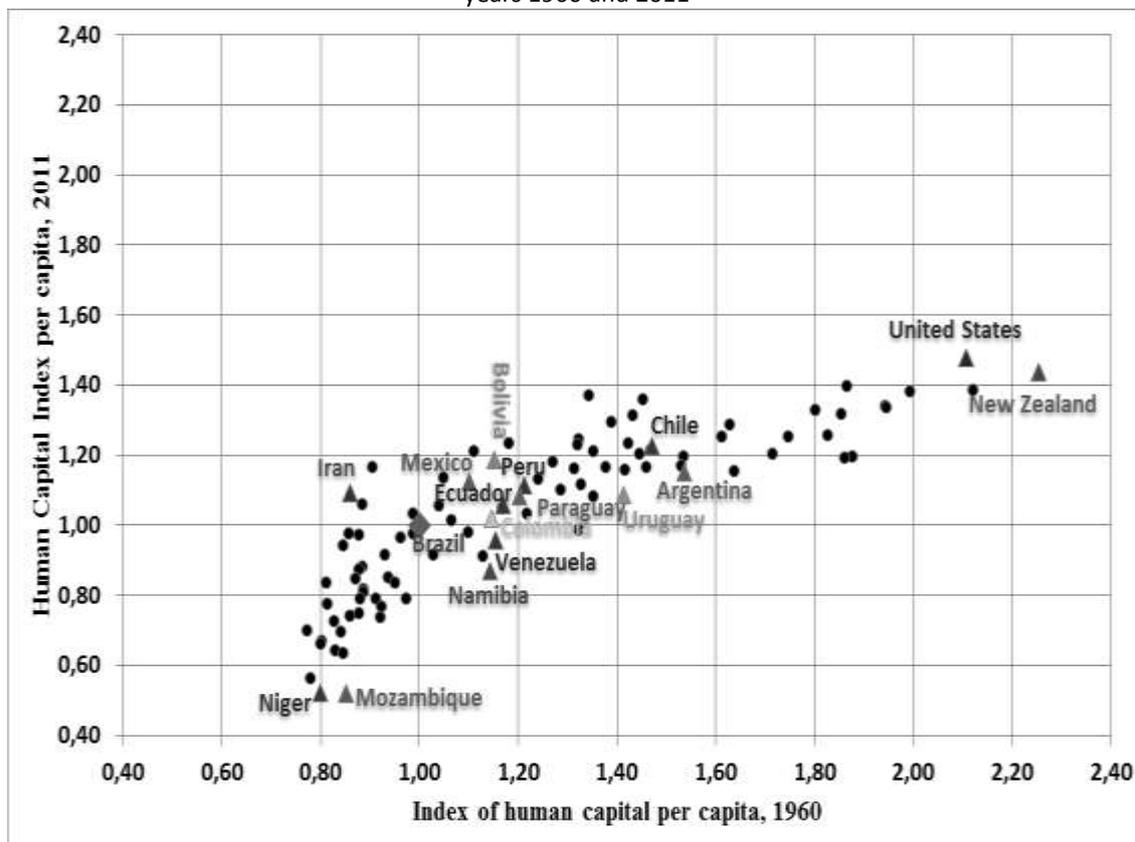
When we observe the dynamics of national human capital compared to other nations we find that we have always been and still continue to fall short not only of more developed countries, but also of countries in stages of development similar to ours.

Figure 2 shows the human capital per capita index proposed by Feenstra, Inklaar and Timmer (2013). It is an index based on years of schooling, as proposed by Barro and Lee (2012) and returns the education proposed by Psacharopoulos (1994). Note that this indicator also takes into account the payback that education gives, making numerical differences smaller than human capital, since this payback tends to be higher in less developed countries.

In this figure, the human capital index of Brazil was taken as numeraire price. The axes of the plan represent the index of human capital per capita in the 1960's on the horizontal axis and 2011 on the vertical axis. Therefore, dividing the figure into four parts, it can be seen that a huge group of countries had a human capital pattern superior to Brazil in 1960 and that is maintained in 2011. It is visible to see the countries that are located at the "northeast" of Brazil as shown in the figure. The countries are United States, New Zealand, Chile, Argentina and Mexico. Other countries presented worse than our country in 1960 and continued below in 2011. These countries are at the "southwest" which is the case of Mozambique and other

thirty countries of the sample. Four of a total of ninety seven countries were worse than Brazil in 1960 and outnumbered us in 2011, as was the case in Iran and three other countries. Five countries that were better positioned than Brazil in 1960 were surpassed, among them Namibia. Brazil's relative position vis-à-vis its South American neighbors should be emphasized: Brazil, in 2011, had a human capital index superior only to Venezuela.

Figure 2 - Human capital per capita index, based on years of schooling and returns of education in the years 1960 and 2011



Source: Feenstra, Inklaar and Timmer (2013). Prepared by the authors

Faced with the educational difficulties of Brazil and the low human capital stock, professional qualification plays an important role in the mission of softening these damaging effects on labor productivity. This importance gains even stronger contours when it is provided for free in the form of public policy - it will assume the role of an efficient public policy in the sense of Pareto² efficient, reaching the farthest corners of a continental country.

The professional qualification assumes strategic importance for several reasons, among them is: to keep the professional updated in his area of knowledge; redirect the professional career of the individual; teach how to deal with new challenges; and act as a lubricant for learning gaps. Individuals enjoy the transition from moments in their career to their requalification.

Professional qualification as a public policy must be thought out and drawn in plausible contours. The moment the country is experiencing one of the greatest economic crises in its history, and it is time to present opportunities.

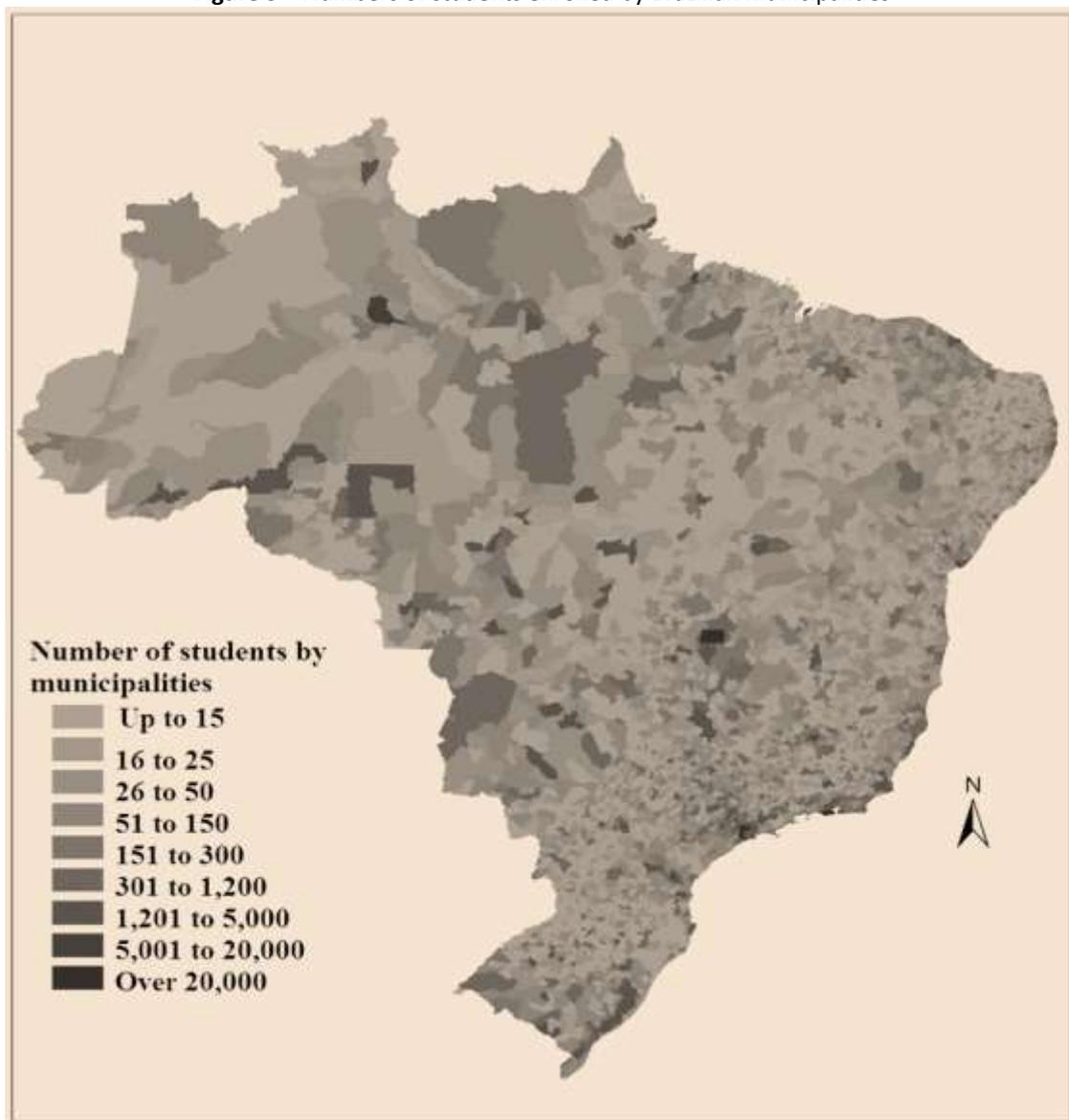
² Pareto Efficiency is named after the nineteenth-century economist and sociologist Vilfredo Pareto (1848-1923) who was one of the first to examine the implications of this idea.

The “Escola do Trabalhador” has offered a set of courses that aims to meet the training demands of the worker aiming to better qualify and improve their work, increasing their chances of employability and contributing to the increase of productivity in the country.

Being a platform of distance learning, the School presents some indelible virtues. The first is low cost. Although it presents an expressive initial cost, its marginal costs tend to zero³. This means that the school does not get more expensive as new students are being incorporated into the learning environment, making the School able to offer millions of places in dozens or even hundreds of qualification courses.

Another virtue is the capacity for territorial diffusion. In a continental country like Brazil any public action becomes a huge challenge. The learning environment of “Escola do Trabalhador” requires only a way to connect to the Internet to study. This virtue makes this public policy universal in its strictest sense.

Figure 3 – Numbers of students enrolled by Brazilian municipalities



Source: Brasil (2019). Adapted by the Authors

³ Varian (2012).

Figure 3 shows the map of Brazil and the indication of the number of students enrolled by municipality in the national territory. As of July 2019, a total of 5,451 municipalities of the 5,570 Brazilians, making up 99% of Brazilian municipalities, had students enrolled in the School. It is one of the largest public policies in Brazil regarding its diffusion.

Even so, one can question about the effectiveness of a policy like this, mainly, its effects on the employability. It is important to emphasize that the level of employment in a country, is a function of its economic dynamics, above all, of investment patterns, which are a function of an enormous amount of attributes, among them is the business environment.

It is clear that qualification policies can be coated with economic incentives where public authorities could offer, for example, vocational training vouchers to companies that hire workers. With this type of action the vocational training policy becomes more focused on the individual and with the necessary training for human capital gains and productivity. This type of action aims to reduce the risks of unsuccessful hiring for the employee and thus, expecting hiring growth.

On the other hand, it can be considered that voucher policies do not have the same spectrum, either of vacancy offerings because it is an expensive policy or diffusion power. For example, workers from economically depressed regions, such as those in the northeastern region of Brazil, would probably have bigger difficulties accessing this type of policy, due to regional labor market dynamics or the difficulty of finding specific course providers - which would only make sense if they were classroom classes.

Silva Júnior et al. (2019) warns that an efficient public policy is one that can converge good results for the improvement of social life with simple execution and low cost. In times of fiscal discipline, this is an inconvertible attribute for the governance of a continental country. The aforementioned authors also point out that the planning of governmental actions that can be facilitating and inducing the growth of the occupation of the work force is absolutely welcome, especially in moments of economic recovery of a country.

Between virtues and vices, the different designs of professional qualification can become important instruments in cases where each presents comparative advantages.

The “Escola do Trabalhador” should not be seen as a panacea for serious educational problems, human capital formation and labor productivity in Brazil, but it contributes economically, as well as a diffusion of knowledge and training in the most distant corners of that country.

3 METHOD

Every public policy must be evaluated and monitored beforehand. This measure is part of a new culture being implemented in Brazil in which the results of the effectiveness of the public actions must be evaluated with all possible stringency in order to offer greater guarantees of efficient allocation of the taxpayer's money.

Thus, the task of accompanying the egress from “Escola do Trabalhador” is task. What can be done in the current stage is a partial evaluation as the professional training activities are underway and the expected results in human capital formation and productivity are unlikely to be complete.

Also, it is possible to make comparisons of the balance of admissions and dismissals of the egress comparing them to other workers who are in the formal Brazilian job market.

The methodological strategy of this work is simple and objective: using the official databases on formal employment, RAIS⁴ and CAGED⁵, compare how has been the performance of workers who have been trained in the “Escola do Trabalhador” with others.

It is obvious that the comparison should be made with caution since there is no randomization process in the choice of the students who graduated from “Escola do Trabalhador” and such absence could lead to self-selection bias. It is to be supposed that those who seek professional qualification are those who incorporate characteristics that correlate with higher labor productivity, such as: greater self-motivation, self-discipline, etc.

The self-selection bias should be mitigated with the purpose of separating what is the effect of public policy from what is the result of workers' endogenous characteristics and which could be confused as being the fruit of the School's action, as taught by Menezes-Filho (2012).

Angrist and Pischke (2008), point out that an ideal experiment that ensures causal effects imposes the need to eliminate possible biases of self-selection and the most obvious way to do so would be to randomize the sample. As such procedures were not done it is important to say that such biases may be present in the analysis.

On the other hand, it should be considered that this fact leads to reflect that, although it is a public wellness and the offer is almost universal, the “Escola do Trabalhador” probably attracts workers with greater intensity of motivation, discipline and strength to succeed in life.

The following analysis consists of graphical analyzes of the balance of formal employment in Brazil (number of workers hired less the number of workers fired in the same period) and the respective series highlighted for the egress from “Escola do Trabalhador”. It also follows in this analysis trend lines that although not a more robust method has the advantage of analytical simplicity and ease in intuiting results.

With relatively simple instruments of analysis and from the partial results, it is sought to find evidence about the contribution that the “Escola do Trabalhador” has given in the professional qualification bringing better performance of the worker in his employability and gains in the job market.

The data used for the analysis were taken from the RAIS and CAGED micro data. The graduates from the School were identified from their CPFs⁶.

4 RESULTS: THE TRAJECTORY OF THE EGRESS FROM “ESCOLA DO TRABALHADOR” IN THE FORMAL JOB MARKET OF BRAZIL

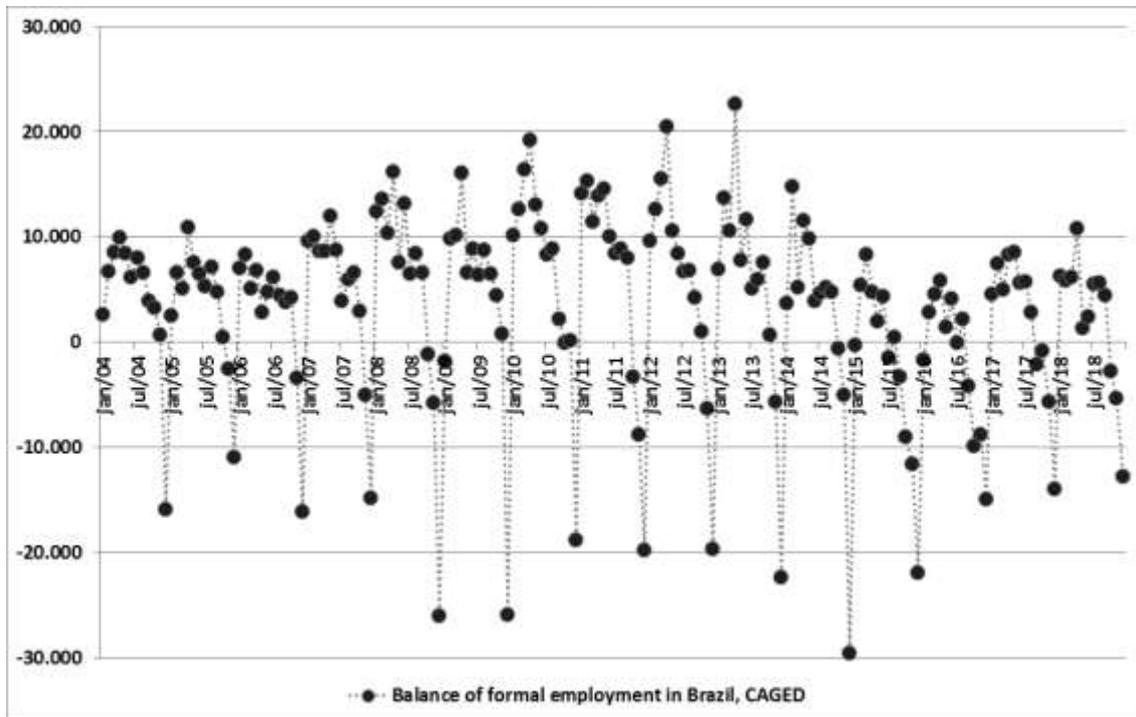
Before verifying the dynamics of the egress from “Escola do Trabalhador” in the job market it is interesting to see how the dynamics of the job market have been in recent years. What is observed is that the formal job market presented a dynamic of its own where the temperature of the economic activity and the seasonal movements determined the traces of the balance of employment, that is, the difference between the numbers of hiring less the number of dismissals. Figure 4 shows this balance.

⁴ The Annual Social Information Report (RAIS) is a socioeconomic information report requested by the Brazilian Ministry of Labor and Employment to legal entities and other employers annually. It was established by Decree No. 76,900, dated December 23, 1975.

⁵ CAGED is the acronym for General Register of Employed and Unemployed persons and is the legal device used by the Ministry of Labor and Employment to monitor the situation of the formal labor force in Brazil. The CAGED was instituted by Law No. 4,923 of December 23, 1965.

⁶ The acronym CPF stands for Personal Registration and is an identification document issued by the Brazilian government. It has a unique number for each Brazilian citizen with eleven digits.

Figure 4 – Balance of Brazilian formal employment based on data from CAGED in the period between January 2004 to December 2018

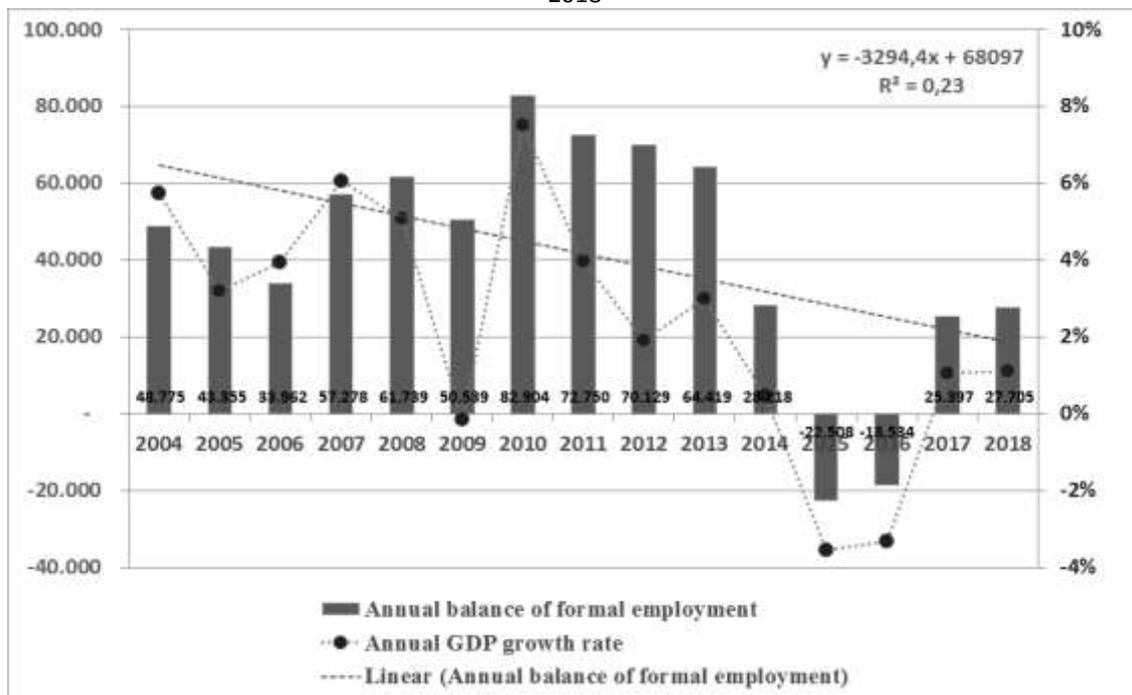


Source: Synthesis of CAGED data published by the IMB (2019). Elaboration of the authors

Looking at the figure, it can be seen that in the years of greater economic activity, the positive balance is found in higher peaks, in the case of the period between 2012 to 2013 whereas in the years of recession the balance was always lower, as observed in the years between 2015 to 2017. The lower values always represent the months of December of each year. This effect is characteristic of the seasonality of employment in Brazil.

An alternative way of looking at this dynamics is to verify how the annual employment balance occurred by associating it with the rate of change of economic growth. Figure 5 shows these values.

Figure 5 – Annual balance of formal employment and rate of change of GDP in the period between January 2004 to December 2018



Source: Synthesis of CAGED data published by the IMB (2019). Elaboration of the authors.

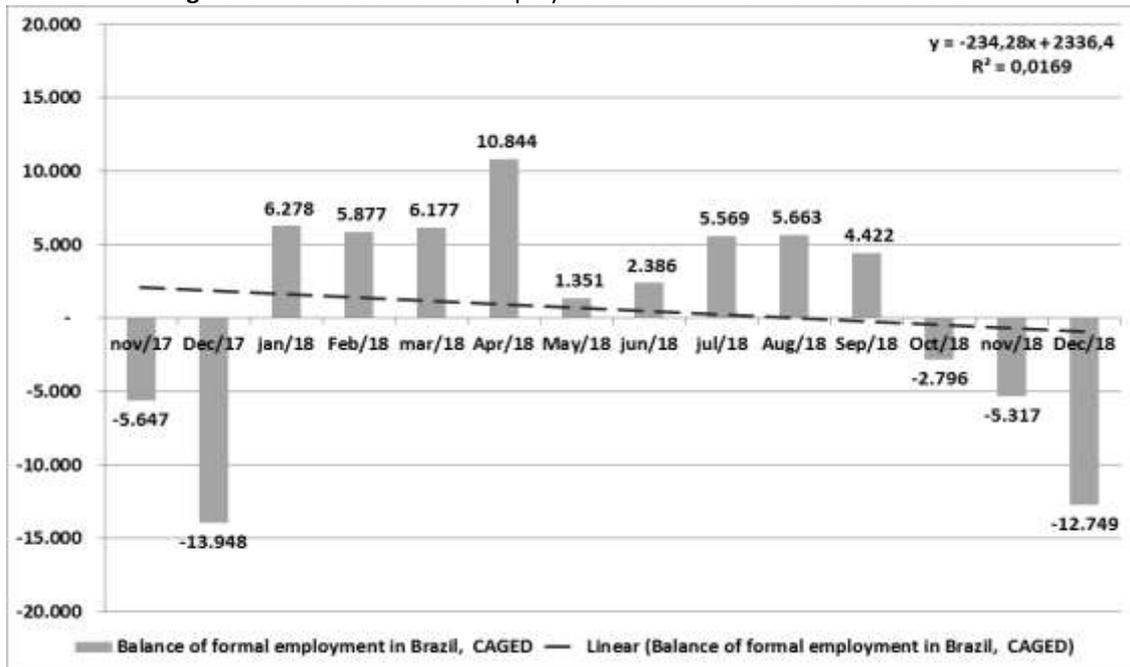
In this case, what is verified is a statistical correlation of 0.83, that is, the growth of economic activity is too responsible for the generation of new jobs - an increase in employment is mainly due to economic growth.

The year 2010 is responsible for the greater growth of the balance of jobs and also for the greater rate of growth of the economy whereas the year of 2015 is the opposite presenting the worst values, respectively. There are also cases in which this relationship is weak or inexistent. In this case, the year 2009 had a huge increase in employment and a year of negative growth.

Looking at this figure, specifically, the linear trend of the annual balance of formal employment and the adjustment equation can be inferred that 3,294 new jobs have ceased annually in the period between 2004 and 2018. Obviously this is a worrying number since it can be assumed that the dynamics of the job market has not been able to meet the dynamics of the population's growth and that the labor regulatory framework has become obsolete and formal employment has shrunk, giving way to other heterodox forms of hiring.

Extending that image and opening in months in the period from November 2017 to December 2018, it is observed that the dynamics remain. Figure 6 shows the balance of formal employment in Brazil in this period.

Figure 6 – Balance of formal employment in Brazil and linear trend of data

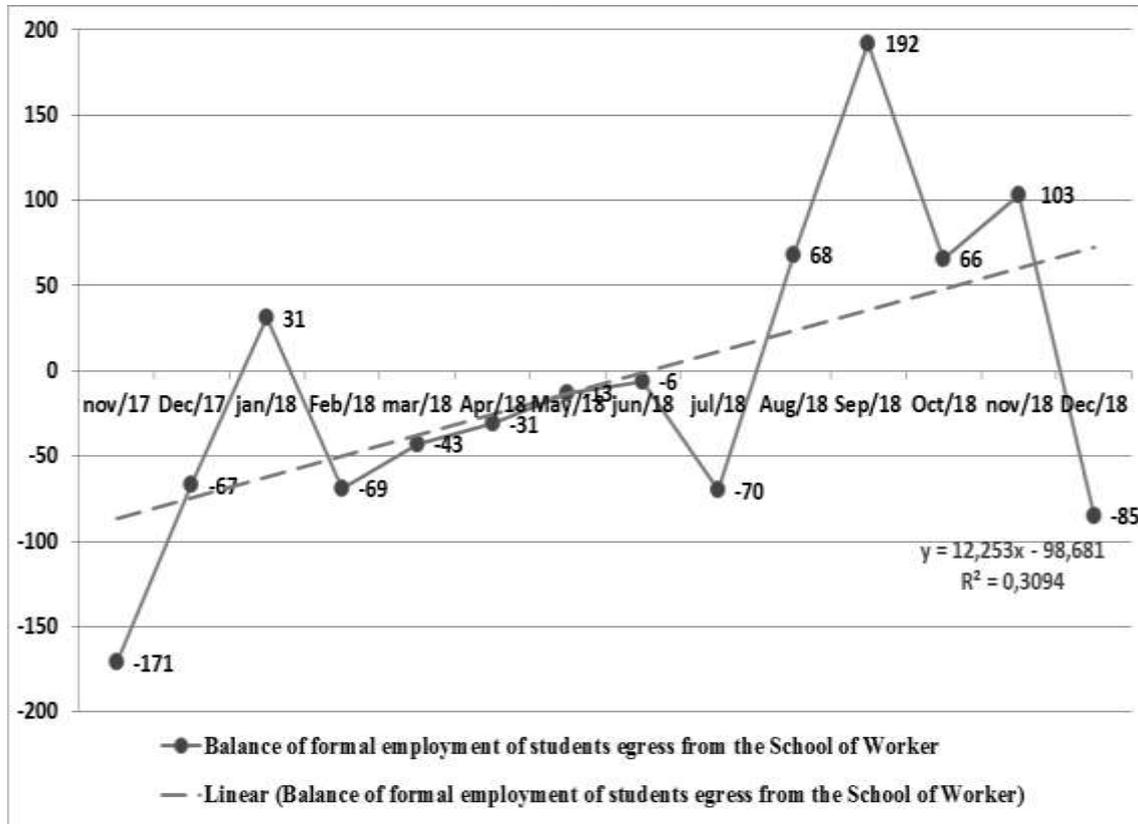


Source: Synthesis of CAGED data published by the IMB (2019). Elaboration of the authors.

Once again, there is a downward trend in the creation of new jobs. In addition to the expected seasonal movement at the end of the year, what is verified is that five of the fourteen months analyzed have a negative contracting balance. Another aspect that draws attention is the fact that observing the linear trend of the series, it can be seen that 7.7882 new jobs are no longer created per day. Multiplied by thirty (30) days, this figure reaches 233 less jobs per week, multiplying by 365 (days), this amounts to about 2,800 less jobs a year.

The month of November of 2017 was the period that started the “Escola do Trabalhador”. It is yet to know how the series of formal employment balance of the egress of this School behave. Has this subset of workers followed the trend of the rest of the job market, eventually had worse or a better performance? Figure 7 shows the balance of formal employment of students egress from “Escola do Trabalhador” in the period from November 2018 to December 2018.

Figure 7 – Balance of the formal employment of students egress from “Escola do Trabalhador” and the linear trend of the data, from November 2017 to December 2018



Source: CAGED data. Elaboration of the authors

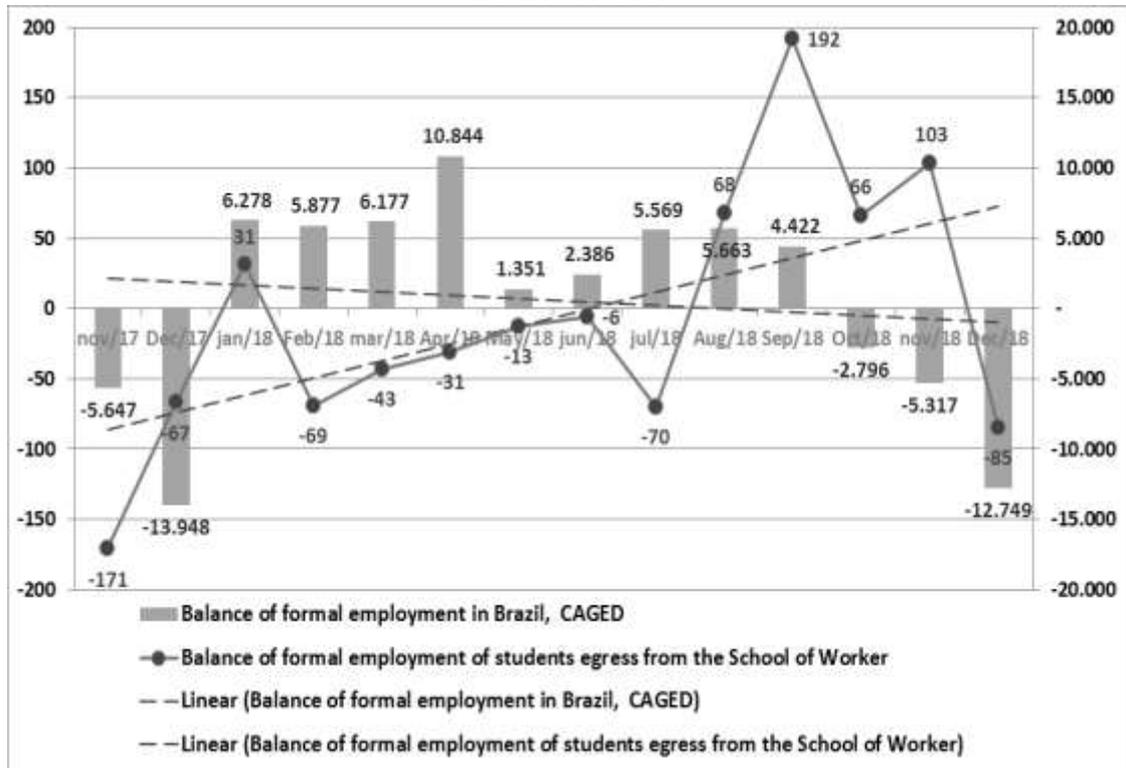
Observing the Figure, it is verified that in the initial period of the series the balance of these students was negative and becomes positive only at the end. This is a move that seems logical: as long as this subset of workers lost their job placements they began to seek professional qualification and then relocated to new jobs. The answer seems to have come immediately afterwards - assuming new jobs.

It is important to note that this subset of workers was also faced with market dynamics, including seasonality. It is also noticed that in the period presented that corresponds to fourteen months; nine of them had a negative balance and only five, positive. However, the dynamics must be considered: the negative balances seem to mark the initial period of foundation of the School when the dismissed worker seeks the qualification and the final period of the series seems to show the results of the qualification.

On the other hand, it should be noted that the trend line of the data series reveals that twelve new jobs were created monthly, on average, for the students egress from “Escola do Trabalhador”.

An interesting exercise would be to compare the performance of the part with the whole, that is, to compare the performance of egress from “Escola do Trabalhador” with the rest of the workers. Figure 8 shows the balance of formal employment in Brazil and the balance of formal employment of students in the “Escola do Trabalhador” and their respective linear trends of data.

Figure 8 – Balance of the formal employment in Brazil and balance of formal employment of students egress from “Escola do Trabalhador” and their respective linear trend of the data, from November 2017 to December 2018



Source: Synthesis of CAGED data published by the IMB (2019). CAGED data. Elaboration of the authors

Note that in the case of a figure with two vertical axes, the left axis shows the balance of formal employment in Brazil while the right axis shows the balance of the egress. It is important to note that the scale between the axes is 1/100.

The trend lines are in opposite directions: while the total number of workers it's with a negative linear trend, the opposite happens with the egress. This result reveals evidences that the egress from “Escola do Trabalhador” has obtained better results of employability in relation to the rest of the Brazilian workers. This is a very encouraging result that seems to translate the efforts of qualification into competitiveness.

It is obvious that one cannot point to causality, only correlation. Obviously, it cannot be said that a professional qualification course, however good it may be, was responsible for such a result, but one cannot deny its importance.

As previously pointed out, one cannot deny the possibility of self-selection bias as observing this picture. It is quite plausible to believe that those workers with greater stock of relative human capital when they see themselves disconnected from their work seek qualification, training. For the majority of Brazilian workers earning up to two minimum wages, residing in small cities and economically depressed regions, the options of professional qualification are scarce or nonexistent and those workers with more perseverance, motivation, discipline and will to win, knowing about the existence of qualification courses such as the “Escola do Trabalhador” should look for it and they are going to have comparative advantages when it comes to disputes for new posts.

5 CONCLUSIONS

The professional qualification provides the maintenance professional updating of the worker, redirecting careers, teaching how to deal with new challenges, work environments and technologies. In times of difficulties in the labor market, individuals take advantage of requalification.

As a public policy, professional qualification must be well designed and specially when the country is making an enormous effort to get rid of one of the greatest economic crises in its history, it is an excellent moment to imbue itself in this task.

The “Escola do Trabalhador” has offered a set of courses that aims to meet the training demands of the worker aiming to better qualify and improve their work, increasing their chances of employability and contributing to the increase of productivity in the country.

It is too early to speak more strongly about the effectiveness of the School in relation to the results of its egress in the competitive and difficult Brazilian job market. However, the preliminary results bring some clear evidence. In case of maintaining such preliminary results, it can be concluded that the “Escola do Trabalhador” could become a differential in the strategy of training and professional qualification.

Other rounds of evaluation and monitoring should be done in order to seek new and better evidences and also be able, if appropriate, to propose new designs, new courses and strategies of actions of the “Escola do Trabalhador”.

At the moment what can be said is that the School has fulfilled its role of qualifying workers and that they have been more successful in employability than the others Brazilian workers.

REFERENCES

- ACEMOGLU, D. **Introduction to Modern Economic Growth**. Princeton University Press, 2000.
- ANGRIST, Joshua David; PISCHKE, Jörn-Steffen. **Mostly harmless econometrics: an empiricist's companion**. Princeton University Press, 2008.
- BARBOSA FILHO, Fernando; PESSÔA, Samuel. Educação, crescimento e distribuição de renda: a experiência brasileira em perspectiva histórica. In: VELOSO, Fernando et al. (Org.) **Educação básica no Brasil: construindo o país do futuro**. Rio de Janeiro: Elsevier, 2009.
- BARRO, R. J.; LEE, J.-W. A new data set of educational attainment in the world, 1950-2010. **Journal of development economics**, 2012.
- BORJA, George. J. **Economia do trabalho**. 5. Ed. Porto Alegre: AMGH, 2012.
- BRASIL. Portal da Escola do Trabalhador. Available in: <http://escoladotrabalhador.gov.br/> last access in 01/14/2019.
- FEENSTRA, Robert C.; INKLAAR, Robert; TIMMER, P. Time. The Next Generation of the Penn World Table. 2013. Available to download in: www.ggdc.net/pwt.
- FERREIRA, Sérgio Guimarães; VELOSO, Fernando. A reforma da educação. In: PINHEIRO, Armando Castelar; GIAMBIAGI, Fábio (Orgs.). **Rompendo o marasmo: a retomada do desenvolvimento no Brasil**. Rio de Janeiro: Elsevier, 2006.

IMB – Instituto Mauro Borges de Estatística e Estudos Socioeconômicos. Available in: http://www.imb.go.gov.br/index.php?option=com_content&view=category&id=109&Itemid=185&limitstart=126. Lastaccessin06/14/2019.

MENDES, Marcos José. **Por que o Brasil cresce pouco?:** desigualdade, democracia e baixo crescimento no país do futuro. 1 ed. – Rio de Janeiro: Elsevier, 2014.

MENEZES-FILHO, Naércio (Org.). **Avaliação econômica de projetos sociais.** 1. Ed. São Paulo: Dinâmica Gráfica e Editora, 2012.

PISA. Pisa Data Explorer (2019). Available in: <http://openpisa.org/#home>

PSACHAROPOULOS, G. Returns to investment in education: A global update. **World Development**, 22(9):1325–1343, 1994. Available to download in: <http://ideas.repec.org/a/eee/wdevel/v22y1994i9p1325-1343.html>.

RAY, D. **Development economics.** Princeton University Press, 1998.

SEN, Amartya Kumar. **Desenvolvimento como liberdade.** Trad. Laura Teixeira Motta. São Paulo: Companhia das Letraspress, 2000.

SILVA JÚNIOR, L. H.; MARINHO, D. N. C. M.; LEAL, A. C. F. S.; BELLONI, J. A. e RUAS, C. Proposta de metodologia para monitoramento do mercado de trabalho formal do Brasil assumindo mercados competitivos e em equilíbrio nas bases de dados oficiais do governo. **Inclusão Social**, Brasília, DF, v.12 n.2, p.197-213, jan./jun. 2019. Available in: <http://revista.ibict.br/inclusao/article/view/4674>. Access in: 06 jun. 2019.

VARIAN, Hal R. **Intermediate Microeconomics: A Modern Approach.** University of California at Berkeley. 8th Edition, 2010.

VARIAN, Hal. **Microeconomia:** uma abordagem moderna. Rio de Janeiro: Elsevier, 2012.

Artigo recebido em 10/09/2019 e aceito para publicação em 04/12/2020
