Labor force formation in the Brazilian primary-export economy*

Luciano Edison da Silva[1]
ORCID: 0000-0001-6449-3447
Roberto Antonio Deitos[2]
ORCID: 0000-0001-9150-6354

Abstract

This study presents the results of a research on the jobs that have been generated by an economy undergoing a process of deindustrialization and reprimarization, concomitant with strong influxes in scientific and technological education. The objective was to evaluate the impact of the Brazilian economic structure on public educational policies for the formation of the labor force necessary for this market, especially for those graduating from high school and vocational education. Because it is a period in which insertion into the world of work becomes equivalent to education, the last stage of basic education plays an important role, especially for those who live from work. However, between expectation and reality, occupations have been of low and medium complexity, even in the face of rising juvenile schooling. With low technological intensity of its productive structure, the education for young people tends to be oriented to supply the human resources for this economy. This study is based on data available from the Ministries of Labor, Education, and the Economy, IBGE, IPEA, and ILO, anchored on a theoretical framework related to the themes of education and labor. As a result, it is possible to infer an economic (re)taking of low technological activity underway, and a corresponding pressure on technical-scientific education for the training of workers destined for this growing market.

Keywords

Education – Labor – Economics.

*The authors take full responsibility for the translation of the text, including titles of books/articles and the quotations originally published in Portuguese.

1- Instituto Federal do Paraná, Capanema, PR, Brazil. Contact: luciano_soc@yahoo.com.br
2- Universidade Estadual do Oeste do Paraná, Cascavel, PR, Brasil. Contact: rdeitos@uol.com.br

https://doi.org/10.1590/S1678-4634202450X250192en

Introduction

In recent decades, the country has shown a strong upsurge in the primary-export sector, with low or no industrial process. Restarted mainly in the last quarter of the 1980s, it deepened and worsened in the following years, especially in the early years of the current millennium (Cano, 2012). Particularly affected, the manufacturing industry is the one that starts to register the largest losses while the economy tends to shift towards low value-added products, predominantly natural resources, or commodities, which are raw materials "[...] originating from nature, such as ores, oil, agricultural and forestry products and their derivatives" (APEXBRASIL, 2011, p. 6). Data from the Ministry of Economy, Industry, Foreign Trade and Services (MDIC, acronym in Portuguese) corroborate this picture, showing a strong upsurge in the trade balance skewed towards products with low or no industrial process.

In this perspective, the influxes of this economic structure have reverberated in the types of jobs, consequently in the education for the formation of this workforce, because, as Kuenzer (2000) explains, every education is for work. Thus, the record of increased job supply and progress of education immediately presents a booming economic scenario of the country, but the underlying aspects of this panorama put into perspective jobs for activities of low complexity and point to a scenario of frustration concerning insertion in the labor market, especially for young people, who have invested increasingly in their qualification (Rocha-de-oliveira; Piccinini; Bitencourt, 2012).

The constitution of this scenario has several understandings, ranging from anthropological cleavages and the deplorable arguments that reserve the formation of a people unfit for more complex knowledge to crossbreeding, race, climate, and soil. Some have identified the presence of feudalism that did not allow the constitution of a capitalist society in classical terms. Others look beyond the sea by attributing exogenous issues to the formation of the country, such as the country's position in the international framework of the division of labor and the divergent arguments regarding the behavior of the exchange rate. Without exhausting this issue, we worked with categories that present strong pressure on the structures, such as the productive arrangement and the formation of classes (Fernandes, 1976; Furtado, 2005; Marini, 2013; Kuenzer, 2007), and the influxes in the inhibition of innovation activities and diffusion of technical progress, especially of high technology (Nascimento; Gusso; Maciente, 2012). In this scenario, the demand for a labor force with higher education, especially those for higher and technical education ends up presenting low absorption, leading a large contingent of workers to the condition of being overqualified and underpaid in occupations often disconnected from their training.

In this comprehension, in a society where the economy has been historically oriented towards the production and exportation of commodities, the State policies for education, especially technical-scientific and for employment, end up suffering its effects, subject to the maintenance and reproduction of this economic matrix. Given this, the development of science and research is in line with the market to which the country has conformed since this type of economy puts little pressure on them. Nevertheless, education aimed

more at neuromuscular activities than brain activities predominate, explain Frigotto and Ciavatta (2003), as occurs in central countries with complex economies.

The employment scenario in Brazil does not necessarily convert rising schooling into better occupations (Nascimento; Gusso; Maciente, 2012). For the youngest and most vulnerable classes, workers and their children who live off work, it is possible to include them in an even broader picture of professional downgrading. This is because, the deindustrialization and reprimarization of the national economy that makes the country increasingly dependent on the production of primary products for export, produce effects on education with public policies that have kept it closely tied to the behavior of the market (Deitos, R., 2019; Altmann, 2002), to train workers under the terms of this economic matrix. Therefore, for those, the anticipation of the end of studies is a path, often without choices, since school becomes a third working day, explains Kuenzer (2000, 2007).

As all education is dated, be it this or work, in each society both have been subordinated to its economic structure, legitimating them daily through a passive induction, in which it presents itself as an indispensable gear, in this sense, Mészáros (2008, p. 17) causes: "[...] tell me where work is in a type of society and I will tell you where education is" (p. 17). Thus, in a society where the economy has found policies receptive to the primary-export model, it counts on the intervention of the State for both, guiding them to maintain and reproduce this market, as the data presented below indicate.

Therefore, the objective of this article is to trace the panorama of jobs available, particularly to young people, in an economy that has become everyday dependent on a primary-export production, situating the place of technical-scientific education in this process.

Methodological procedures

In this qualitative-quantitative research, data collection occurred through the federal government's official websites, for the years 2007 and 2017, mainly at the Ministry of Labor and Employment (MTE, acronym in Portuguese), which are the General Cadastre of Employed and Unemployed (Caged, acronym in Portuguese) and Annual Report of Social Information (Rais, acronym in Portuguese) and the National Institute of Educational Studies and Research Anísio Teixeira (INEP, acronym in Portuguese). The choice of these periods was possible because, as Jannuzzi (2001) explains, historical series have increasingly become available in a transparent way that allows the identification of the policies printed by public managers. That year was selected because it begins there the first signs of the 2008 crisis, slowing down the world economy, with impacts that aggravate mainly the peripheral economies "[...] in the conjunctural framework of an insertion in the world economy that is already, for structural reasons, dependent and subordinated to the behavior of the center of world capital accumulation." (Macário *et al*., 2018. p. 31). The choice of this one, on the other hand, is due to the time of the surveys of data on employment, reports, and series, being finalized, which is still very unusual, because of the constant delays in the publication of official figures.

The collection of data on jobs occurred mainly in the MTE. Regarding admissions, the CAGED (Brasil, 2019b) was used in the period between January and December of each

year, and only for stock, the RAIS (Brasil, 2018) was used. This is because, according to Saboia (2009), RAIS constantly undergoes changes in its methodology, despite presenting a larger universe of contracted population, as is the case of statutory workers, and therefore the data may suffer significant distortions. Data from the Brazilian Institute of Geography and Statistics (IBGE, acronym in Portuguese) and the Institute for Applied Economic Research (IPEA, acronym in Portuguese) are also used, fundamentally because they present numbers already treated in their high-performance statistical systems, which would be too laborious and time-consuming to do only through the MTE.

The use of the Brazilian Classification of Occupations (CBO, acronym in Portuguese) was always present to visualize the movements of formal employment within each job position, identifying those that have been mostly absorbed by the labor market (Brasil, 2010). The CBO is an important research tool because it allows us to name, describe and code each profession, which gives us a better panorama of the professions that are active in the Brazilian labor market, whether in their complexity or the competencies mobilized.

Organized into 10 Major Groups (GG), 48 main subgroups (SGP), 192 subgroups (SG), and 607 occupational families, the CBO comprises 2,511 occupations. Because of this large number, the GGs were used predominantly, identifying the level of competence of each one, ranging from two to four, whose higher number reveals its degree of complexity, breadth, and responsibility in its execution (Saboia, 2009). Greater attention was given mainly to those of GG2 and GG3, for containing a large part of the more complex occupations and a higher level of competencies, respectively 4 and 3. These are occupations that require more training and experience, mainly in higher education and technical training at the high school level. Others, such as GG1 and GG0, were discarded due to their high heterogeneity.

To collect the education figures, we used the INEP portal (2019a, 2019b, 2020), with emphasis on basic education in its last stage, as well as the data from the All for Education website (TPE, acronym in Portuguese), for the same issues of using IBGE and IPEA, in the same time frame and anchored in established research on the theme of education and work in Brazil.

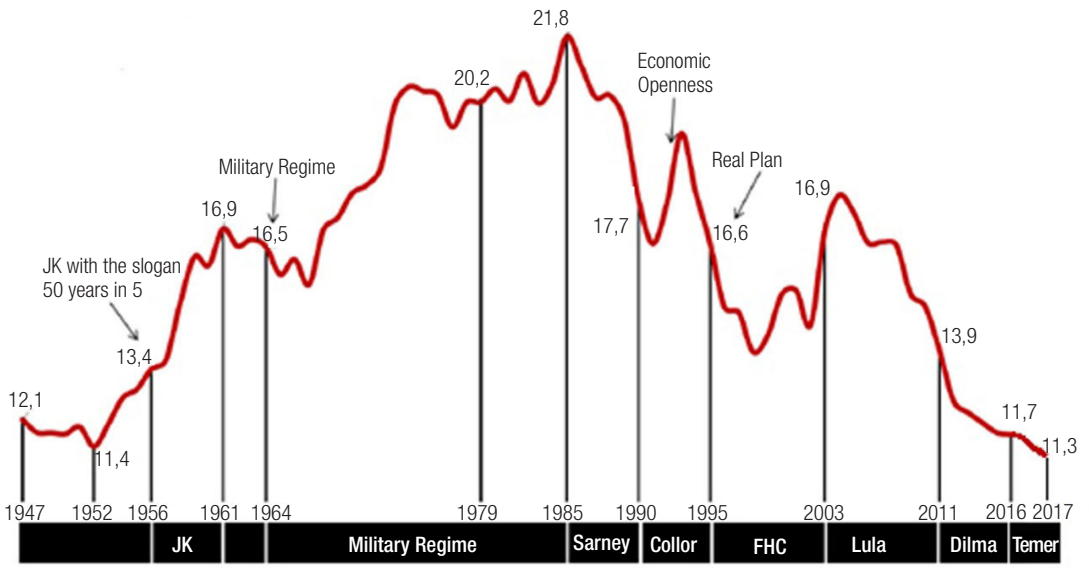
Employment, education, and the influxes of a primary-export economy

Kuenzer (2000) explains that every educational management is sifted by the agenda of its rulers, thus expressing their conception of society. In a country where economic numbers have been registered at a pace of deindustrialization and reprimarization, it is necessary to count on a corresponding labor force. Thus, it is necessary to implement policies to train these workers to fill the jobs in this market, which is what has been happening. According to studies by Roberto Deitos (2019), there has been a demand for professional qualification at educational institutions whose skills are articulated with the country's socioeconomic framework, which comprises labor relations and all the execution components. With this, it is possible to count on the workers that will move this economy in the future.

The process of deindustrialization and reprimarization has been something of intense debate among various economists. It occurs when a country loses industrial participation, particularly in the transformation, of the gross domestic product (Feijó; Carvalho; Almeida, 2005). According to the same researchers, this movement, inducing deindustrialization, should be measured only in this category, the manufacturing industry, because it is the one that resembles the concept of manufacturing industry, where technology, innovation, remuneration, and pressure on other sectors that ends up diversifying them, as indicated by Bresser-Pereira, Marconi and Oreiro (2014) and Furtado (2015).

This loss of industrial centrality is what has been recorded since the 1980s, basically in sectors of greater technological complexity, which are the transformation sectors (Cano, 2012), as revealed in the figure 1. But, contrary to what some economies register, this process is not a natural stage because they are specializing in products and services that "[...] is most often a normal consequence of a successful economic development process, being generally associated with improvements in the standard of living of the population" (Feijó; Carvalho; Almeida, 2005, p. 4). In Brazil, it is artificial, because it has found beneficial policies to produce natural products, mainly through expedients such as favorable exchange rates (Cano, 2012).

Figure 1 - Participation of the transformation industry in the GDP, in %



Source: IBGE (2017).

This state intervention impacts the increase in low value-added activities, such as natural resources or commodities. Thus, the economy returns with pattern and dependence on productive and commercial specialization, which leads to reprimarization of a country, explains APEXBRASIL (2011).

Graphic 1 shows the dominance of products not classified in the Transformation Industry (NCIT, acronym in Portuguese), namely commodities, and the reduction of products with higher technological aggregate, intended for export.

Graphic 1 - Evolution of the production of products by technological intensity exported between 1997 and 2017, in dollars

					1997-2017	1997-2007	2007-2017
Type	2017	2007	1997	Total Result	variation %	variation %	variation %
NCIT Products	81.897.958.337	38.965.289.238	9.825.713.046	955.132.878.983	733,00%	296,00%	110,00%
Products of the Low Technology Manufacturing Industry	57.776.096.805	44.817.274.194	18.294.391.197	849.794.526.986	215,00%	144,00%	28,00%
Medium-Low Technology Manufacturing Products	27.793.165.190	29.265.934.337	9.134.530.281	461.255.823.382	204,00%	220,00%	-5,00%
Medium-High Technology Manufacturing Products	40.329.186.016	37.891.618.081	13.340.116.701	599.262.502.237	202,00%	184,00%	6,00%
Products of the High-Tech Manufacturing Industry	9.942.812.118	9.581.766.905	2.352.744.307	157.767.160.199	322,00%	307,00%	3,76
Total	217.739.218.466	160.521.882.755	52.947.495.532	3.023.212.891.787			

Source: MDIC (Brasil, 2019a).

Oreiro and Feijó (2010) clarify that this movement begins with the adoption of state policies, starting in the 1980s, that are much more receptive to this type of production. Employed excessively, Cano (2012) states that such devices adopted in the 1990s under presidents Fernando Collor de Mello and Fernando Henrique Cardoso (FHC), on the one hand, contributed to the strengthening of the primary-export sector, but, on the other, affected the industry, weakening it in the face of international competition with a long history of cutting-edge technology. This, these economists explain, obstructed the development of national industry even before completing the industrial transition, because investment in industrialization loses steam in the face of the revalorization of the traditional economy that exports primary products (Oreiro; Feijó, 2010; Cano, 2012)

A supporter of industrial development, Furtado (2005) attributes to it a role of utmost relevance in a country since it is there that the best jobs, remuneration, as well as general pressure in other sectors, are registered, especially those of innovation and technology. Along the same lines, Bresser-Pereira, Marconi and Oreiro (2014) are emphatic in stating that economic development begins with the industrial revolution and is characterized by industrialization. It, states Cano (2012), induces expansion of this sector, prints growth and diversification in other sectors, such as trade, transportation, finance, health, education, etc., and even agriculture grows, diversifies, and modernizes, which requires school investment for science and technology on a larger scale (Nascimento; Gusso; Maciente, 2012).

Despite this positive aspect of the role of industrialization, David Carvalho and André Carvalho (2011, p. 42), recall that "[...] industrialization is a necessary, but not sufficient, condition for an underdeveloped economy to reach the standard of development

of developed economies [...]", since it induces other sectors to technological development, by consequences to the need in training the corresponding workforce. However, as Saboia (2009) asserts, the low technological activity of the economy recorded in recent years has created an environment that does not encourage economic development that requires high investment in the training of the workforce. He also notes in his studies that the Brazilian economic structure has printed low absorption of workers with more complex training, particularly for those of high technology as occupations of the GG2 and GG3 (Saboia, 2009).

This process does not come from today and is a trademark of the country. Just as Cano (2012) highlights, all kinds of expedients used by recent governments, such as favorable exchange rates, high-interest rates, and fiscal surplus, Marini (2013) and Furtado (2005) highlight this same long-standing intervention. The authors explain that the country has always known how to defend the agro-export sector from external crises, with a strong presence of the state, such as the historic burning of coffee to mitigate the losses of producers. The hand of the State is necessary because commodities are more volatile than industrial products. Therefore, at the slightest sign of international price disruption, the tendency is to lower the power of the national currency, even before the imbalance is consummated (Bredow; Lélis; Cunha , 2016; Furtado, 2005).

Given this, the persistence, through various expedients, concerning this matrix ended up imprinting an economy of little diversity and low technology, since the industrial production complex was also intended to support primary-export activities (Deitos, M. L., 2006). Since its genesis, the direction of Brazilian colonization was foreign trade, thus,

> [...] for the mercantile purposes that were in view, the occupation could not be done as in the simple trading posts, with reduced personnel responsible only for the business, its administration and armed defense; it was necessary to broaden these bases, create a settlement capable of supplying and maintaining the trading posts that were founded and organize the production of the commodities that were of interest to their trade. The idea of settlement emerges from there, and only there. (Prado Júnior, 1981, p. 12).

As tropical agriculture allowed high profitability, every effort for this type of production was employed, "even because the system of the large property worked by inferior labor, as is the rule in the tropics, and will be the case in Brazil, cannot be employed in a diversified exploration and of high technical level (Prado Júnior, 1981, p. 20). Therefore, this long process obstructed economic diversification and consolidated a heteronomy economy (Fernandes, 1976), which has resumed, as economists point out, a recolonizing movement of the economy, with strong subjection to primary production.

As commodity-dependent economies apply little pressure to the development of a more complex, technological, and innovative market (Nascimento; Gusso; Maciente, 2012), these sectors have suffered major impacts. Data from IPEA (2017) confirm this movement with a strong influx in the manufacturing industry. Between 1996 and 2011, high-tech production recedes its participation from 8.8% to 5.5%, medium-high increased

from 29.1% to 29.7%, medium-low jumped from 28.5% to 33.4%, and from 33.6% to 31.4% for low-tech sectors.

As explained by Bresser-Pereira, Marconi and Oreiro (2014), the country ends up renouncing the diversification of activities that could potentialize higher added value, especially in the technical and scientific areas. With this, we will have educational policies in the same terms, with a record of an education that values science and research correlated with the country's economic position in the International Division of Labor (DIT, acronym in Portuguese).

Influxes of a primary-export economy on labor force and education

This economic history, which is in recrudescence, has registered a structure for the occupation of medium complexity and skills in meeting the demand of the national market of low technological factor, pointing out the studies of Nascimento, Gusso and Maciente (2012) and Saboia (2009). Thus, this arrangement reverberates in the types of jobs and training of the workforce in the ranks of educational institutions, since this has not only the purpose of providing workers to maintain the system, but also the values that legitimize the societal project of the ruling class, Mészáros (2008) reminds us. In this perspective, Roberto Deitos (2019) highlights this bridge between the demands of the productive sector and the policies for education, especially vocational, that the country has been treading.

Marked by low technological activity, the educational advancement registered in recent decades has not necessarily converted into better jobs (Nascimento; Gusso; Maciente, 2012). Studies, such as the one by Saboia (2009) present a process of accommodation of the labor market to low-skilled occupations, even in the face of a scenario with educational indicators on the rise, such as the expansion of access to basic and higher education, financing with a significant increase, improvements in the school performance rate and rising schooling (TPE, 2018; IBGE, 2019; INEP, 2020).

In the period between 2007 and 2017 alone, INEP recorded a shift from R$4,475.00 per student at all levels of education to R$8,043.00. However, Pires (2019), from the Getúlio Vargas Foundation's Fiscal Policy Observatory, highlights a deceleration in discretionary education spending. According to his surveys, they rose from 5.6 billion to 23.9 billion reais in the same period, without discounting inflation. However, when this is done, we reach 2009 levels, something unprecedented in history (Pires, 2019). As a result, scholarship programs and research funding have suffered from repeated contingencies.

When these indicators are analyzed in a more mediated, less hurried way, it is possible to glimpse a picture in which there is still much to be done. Without breaking with the system's straitjacket, which is itself incorrigible (Mészáros, 2008), this progress has presented itself more as conservative modernization, necessary improvements to update and qualify the workforce for the market in a new phase of integration to the global economy (Deitos, R.; Lara, 2016). This is because the country's situation in the DIT has remained in the same terms of the colonial past, subordinate and dependent, whose technological production remains concentrated in the central countries.

In this way, advances in education have only allowed raising the inclusion of people in the labor market from basic capabilities (Altmann, 2002). With numbers still far from an ideal situation, it has been common to find detractors of public education who take intra-school issues as operators of the economic-social crisis (Xavier; Deitos, 2006), especially regarding the quality of education, as is the case of Schwartzman and Castro (2013) and supporters of the concept of human capital. However, Xavier and Deitos (2006) also explain that it is from the out-of-school conjuncture that education and the quality imprinted on it arise, not the other way around.

A polysemic term, the quality of Brazilian education has been the target of countless criticisms. Therefore, Soligo (2013) highlights some divergent and convergent conceptions about the term anchored in broad referential. In this study, it has been very common to link the quality of education to its response to the market, especially among multilateral organizations such as the International Labor Organization (OIT, acronym in Portuguese), the Organization for Economic Cooperation and Development (OECD, acronym in Portuguese), the Inter-American Development Bank (BID, acronym in Portuguese) among others, which preach correlated political postures of public managers. In this sense, Shiroma, Moraes and Evangelista (2011) explain how the reforms in education have met this agenda, especially since 1990, whose goal would be the pedagogical rationalization to meet the logic of capital (Paro, 2012). To this end, management should follow the same terms of the market and present positive results, in this case, a suitable labor force.

Herein lies the frustration of rising schooling, especially for young people, who reached 11.3 years of schooling for the population aged 18 to 29 in 2017 compared to 9.7 in 2012 (TPE, 2018). This sentiment occurs because the economy has indeed generated employment, reaching levels of almost full employment between 2003 and 2008, but mainly for low-performing jobs, as pointed out by Saboia's (2009) research. For him, this scenario corresponds to a long economic history that has created a technically archaic and persistent low-productivity framework, but which guarantees competitiveness through a cheap and low-skill labor force.

This is a long-standing framework. Marini (2013) already taught that Brazil's formation process, marked by overexploitation, was a way to compensate for the technological marginality in which the country was positioned in the DIT. Low wages and intense use of the labor force is the condition of labor in the country, emphasizes this social scientist, which sidelines educational policies of any magnitude, especially technical-scientific ones. With this expedient, therefore, the protection of commodities is maintained, with strong state subsidies to the detriment of a techno-scientific education. And so, it should be because this policy guarantees the former.

In this direction, Roberto Deitos (2019) explains that the educational progress recorded has been used more for the conquest of space in the labor market than an indication of the change in the economic structure, because "[...] schooling and professional qualification, treated as the development of skills are not the guiding axes for entry into the labor market, they are only selective indicators for the formation of the mass of stock of labor necessary for the reproduction of capital." (Deitos, R., 2019, p. 11).

In Table 2, we see that the country has increased the number of workers with higher education in the labor market, being the second largest stock in the period investigated, but this is far from representing a change in the economic structure.

Table 2 - Number of Formal Jobs, Absolute and Relative Variation by Education of the Worker, 2017 and 2007

Education	2017	2007	Absolute Variation	Relative Variation
Illiterate	138.898	247.868	-108.970	-43,96
Incomplete Primary Education	4.494.749	7.285.845	-2.791.096	-38,31
Elementary School Complete	4.240.418	5.626.990	-1.386.572	-24,64
Incomplete High School	2.941.652	3.182.875	-241.223	-7,58
High School Complete	22.410.469	13.851.630	8.558.839	61,79
Incomplete Higher Education	1.780.785	1.579.678	201.107	12,73
Higher Education Complete	10.274.619	5.832.544	4.442.075	76,16
Total	46.281.590	37.607.430	8.674.160	23,07

Source: MTE/RAIS (Brasil, 2018).

This data could be a good sign, especially for young people who have invested more in education. But, when we use the CBO, we notice that the absorption for occupations in jobs of greater competence and complexity, especially those in the GG2 and GG3, still has a low representativeness in the calculation of the whole stock (Brasil, 2010).

Table 3 - Brazil: Stock of occupations registered in the CBO Major Groups, for the years 2017 and 2007

				Representation	
	2017	2007	Variation %	2017	2007
Senior Members of the Public Power, Directors of Public Interest Organizations and of Companies, Managers (GG1)	2.431.415	1.664.246	46,10%	5,25%	4,43%
Science and Arts Professionals (GG2)	5.308.208	3.815.892	39,11%	11,47%	10,15%
Middle Level Technicians (GG3)	5.261.791	4.041.220	30,20%	11,37%	10,75%
Administrative Service Workers (GG4)	8.978.209	7.256.548	23,73%	19,40%	19,30%
Service Workers, Shop and Market Vendors (GG5))	11.490.858	8.376.573	37,18%	24,83%	22,27%
Agricultural, Forestry and Fishing Workers (GG6)	1.473.956	1.552.891	-5,08%	3,18%	4,13%
Industrial Goods and Services Production Workers (GG7)	7.941.876	7.471.858	6,29%	17,16%	19,87%
Industrial Goods and Services Production Workers (GG8)	1.521.604	1.401.594	8,56%	3,29%	3,73%
Repair and Maintenance Service Workers (GG9)	1.068.395	1.480.828	-27,85%	2,31%	3,94%
{not calssified}	805.278	545.780	47,55%	1,74%	1,45%
Total	46.281.590	37.607.430	23,07%	100,00%	100,00%

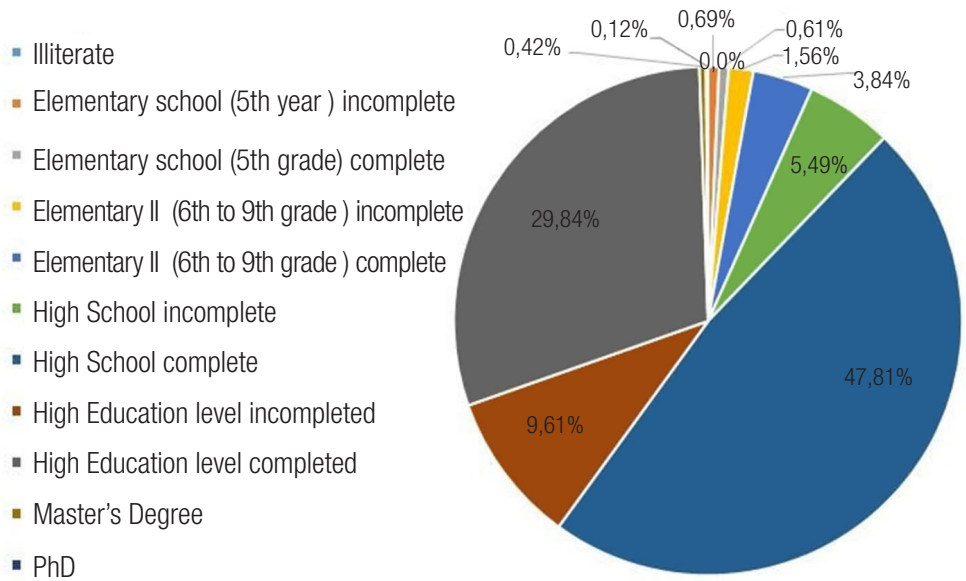
Source: MTE/Caged (Brasil, 2019b).

Disregarding GG1, due to heterogeneity, and the unclassified, GG2, followed by GG5 and GG3, presented the best variations, respectively. In terms of representativeness, the best one remains for the group that concentrates on service and commerce activities, GG5. Jobs that require less schooling continue to register more representativeness in the Brazilian market, as the economy would have reached its saturation level of the high-skilled labor force, such as those in GG2 and GG3 Saboia, 2009).

According to research by Idados (2019), between 2012 and 2019 there was a reversal between the number of workers with higher education and the job supply for that schooling, starting in the first half of 2014. In the second quarter of that year, there were 12.04 million workers with that schooling for a universe of 12.48 million related occupations. In 2019, for the same period, there were 18.33 million against 14.51 million. Nevertheless, the IBGE (2019a) identified, in the same period, a shift from 5.2% to 10% of this labor force to sub-occupations.

Without correlated jobs, it has been common for these graduates to enter occupations where this schooling is not required, as, for example, occurs in the occupation with the highest stock recorded in 2017 (Administrative Assistant), with 2,126,526 active links, whose CBO qualification is level 2 (Brasil, 2010).

Graphic 2 - Degree of education declared for the occupation Administrative Assistant, in 2017



Source: MTE/RAIS (BRASIL, 2018).

For the occupation of "Administrative Assistant" the requirement is high school, however, 40% are overqualified, with almost 30% having completed higher education. In

2007, there were 46% in adjusted status, that is, employment and schooling coincided, and 31.58% overqualified, where 21.26% had completed higher education.

With an increasingly educated labor force available, one would expect a rise in wages, but this has not occurred. The variation in average pay between 2007 and 2017 shows higher education in second to last place, ahead only of incomplete higher education. The best wage variation, in turn, occurred among the illiterate, followed by incomplete elementary school education.

Table 4 - Average December remuneration, of the respective years, by schooling, in Reais at December's price

Education	2007	2017	Relative Variation (%)
Illiterate	596,78	1.479,77	147,96
Incomplete Primary Education	798,99	1.822,83	128,14
Elementary School Complete	905,05	1.892,17	109,07
Incomplete High School	842,89	1.730,34	105,29
High School Complete	1.112,10	2.140,75	92,50
Incomplete Higher Education	1.736,91	2.921,74	68,21
Higher Education Complete	3.242,40	6.071,71	87,26

Source: MTE/RAIS (Brasil, 2018).

Azzoni's (2018) study, between 2003 and 2013, had already been identifying this widely discussed behavior, of falling wage awards for occupations with higher education. In his analyses, he records those occupations requiring cognitive skills, classified as more complex, were offered double the average wage. However, for those social occupations, one and a half times was paid and the motor, 20% below average, both considered less complex. However, their surveys found that over this period there have been retreats in these distances, from 3.4 times the overall average in 2003 to 2.8 in 2013 for cognitive skills while social and motor occupations, in turn, show upward wage gains.

In estimation, by broad groupings, this movement is also confirmed. If GG2, in its hiring records 113% increase between 2007 and 2017, GG3 rose 105%, but all of them were lower than GG5, GG6, GG7, and GG9 which even marked a 166% rise. In other words, the gap between the wage premium for occupations requiring higher and lower education has narrowed.

In the search among the 50 occupations that have hired the most in these years for those of higher complexity, no occupation linked to information and communication technology (ICTs) is registered. Only in the 89th position appears the first one, Systems Development Analyst, competence level 4, with 28,127 thousand admissions, in 2007. In 2017, this same occupation appears in 64th place with 40,263, an increase of 43%. While in that year, 10.14% earned up to 2 minimum wages, in this year they rose to 15.03%.

Given a scenario of low job supply and wages consistent with more complex qualifications, the presence of workers with higher education in app-based jobs has been growing (Abílio, 2017). As the work of Saboia (2009) and Roberto Deitos (2019) points out, the threshold for selection processes has been raised since this workforce has become abundant, even though it is one of the countries with the lowest proportion of inhabitants with this education, according to the OECD (2019), being criteria in the achievement of an allocation in the market. With no room for everyone, placement in jobs disconnected from schooling has been a common path.

Dependent more and more on the production for export of commodities, with a 62.8% share of exports, according to UNCTAD (2018), this ONU agency sees with concern this path of dependence on this production matrix. The MDIC data corroborate this scenario, because of the US$ 224.018 billion in exports in 2017, 52.7% corresponded to basic products. Thus, it is necessary to train the labor force that will be absorbed by this market.

With low pressure on education, this type of economy requires a workforce on its terms. Therefore, Lima Filho (2015) highlights modest numbers still in vocational training, especially in the modality integrated into high school, predominating lighter forms, such as subsequent, with lower costs. Thus, the preference has been to offer a short-duration professionalizing modality (Deitos, R., 2019).

This has been a path taken since the reforms of the 1990s, especially under the FHC government, in which 11 years of studies would be sufficient to meet the growing market, which means, at most, the completion of high school (Frigotto, 2006). With this, they expected that at the end of basic education the graduates would have mastery of the Portuguese language to develop satisfactory writing and verbal communication, basic knowledge of mathematics, and skills for group work and adaptation to new situations (Frigotto; Ciavatta, 2003).

It is evident, as Dourado (2007) explains, the presence of policies proposed by the State, of regulatory, centralized, and authoritarian nature, whose intention is directed to commitments with multilateral agencies in which the market is a reference for school management. Modalities that require structure and techno-scientific investment remain beyond the reach of the great majority of society. In this direction, Kuenzer (2000) highlights the lack of policy on investment in specialized training, which is expensive and takes longer, for a population that lives with few rights and in informality, since the "knowledge society" is for the few, and certainly not the poor.

Thus, the country reached 79.9% of basic education schools with computer labs and only 45.4% for science laboratory, according to the 2017 School Census (INEP, 2019b). In relation to high school, these numbers present themselves are a little better, namely in the federal network, whose participation in basic education is less than 1% and of only 2.4% in high school.

Graphic 5 - Resources related to the infrastructure available in high schools, according to administrative dependence in 2017

Infrastructure	Administrative dependency			
	Federal (n-552)	State (n=19.490)	Municipality (n=245)	Private (n=8.271)
Library or reading room	97,8%	85,9%	80,8%	92,5%
Bathroom (inside or outside the school)	99,8%	90,2%	95,1%	89,0%
SNP* Bathroom	92,9%	59,5%	53,9%	67,0%
SNP Dependencies	76,6	43,5%	37,6	52,4%
Science Lab	81,3%	39,2%	28,2%	58,3%
Computer Lab	98,7%	83,8%	63,3%	69,8%
Internet	99,3%	90,9	75,5%	92,3%
Broadside	94,2%	76,8%	61,2%	86,7%
Courtyard (covered or uncovered)	88,2%	77,0%	82,4%	89,7%
Sports court (covered or uncovered)	69,0%	74,6%	67,8%	83,3%

* Special Needs People (SNP)
Source: Censo Escolar 2017 (INEP, 2019b).

As Roberto Deitos (2019) alerts, these are policies closely linked to the demands of the market, which since the 1980s has been resurgent toward primary-export production, with the acquiescence of the state and multilateral agencies. Nevertheless, Altman (2002) explains that such measures have not gone beyond this and produce a greater effect on market entry than on an education committed to the development of science and technology in a broad and continuous manner.

With a strong influence on investments in technical-scientific education, precisely in times of a new type of education with qualifications that integrate science, technology, and work

> [...] this policy is perversely organic to the new demands of flexible accumulation, which even determines, when the leaders adhere to the hegemonic block, the place that each country will occupy in the globalized economy. In this sense, the renunciation of high level scientific-technological education for the largest possible number of workers corresponds to the renunciation of scientific production, which is equivalent to saying, the construction of a sovereign project of nationhood, exchanged for eternal scientific, economic, and political dependence. (Kuenzer, 2000, p. 26).

With this, even if in recent decades educational progress has been recorded, with an impact on the net schooling rate in which 16-year-olds completing elementary school went from 68.6% in 2012 to 75.9% and 19-year-olds completing high school from 51.7% in 2012 to 59.2% (TPE, 2018), the bottlenecks are still many, especially in the last stage of basic education. PNAD's 2017 publication, by IBGE, records 1.3 million 15 to 17-year-olds not completing high school, but for those no longer studying, 18 to 24-year-olds were

15.6 million and 25.1 million 15 to 29-year-olds. Nor does the increase from 5.1% of GDP in 2007 to 6.3% in 2017, as estimated by INEP, which has placed the country above the OECD average (INEP, 2019a), allow for celebration. When compared to the spending per student in those countries, the country reached US$ 4,500 annually compared to an average of US$ 10,400, in 2016.

This shows that the progress recorded in recent years has indeed occurred, but it is nothing more than necessary corrections to maintain the economic structure based on commodities for export (Deito, R., 2019). There remains an elementary education, organically articulated with the economic arrangements, of shallow technological demand for high performance, with a strong impact on more robust educational policies in the field of science and technology production. Thus, the adoption of this type of policy has remained concentrated in the central countries, whose productive structure is based on technological knowledge (Frigotto; Ciavatta, 2003).

It is in this perspective that Altmann (2002) registers educational progress that only allowed to raise the inclusion of people in the labor market based on basic schooling skills but did not go beyond that. Policies for science and research are limited to a few educational institutions, especially some public universities, because the demand for workers for occupations of greater complexity and competence has been sufficient and heading towards saturation, in a country that has one of the worst rates of access to higher education in Latin America (OECD, 2019).

Final considerations

Just as Darcy Ribeiro warned that the crisis in Brazilian education is not a crisis, but a project, Lima Filho (2015) explains that this picture is not the result of chance, but of a type of society internally thought by the ruling class that has prevented and prevents the universal offer of education, whose basic, technical-professional, and higher education does not even allow them to prepare for complex jobs.

This occurs because the economic structure engendered by the dominant class remains focused on a market of low complexity, whose formation and integration in the international scene has remained aristocratic, concentrating wealth, social prestige, and power, at the price of inequalities of all kinds for the rest of the population. It is in this context that Brazilian education has been located, providing not only the corresponding labor force but also values for its perpetuation.

Even if the country registered a period of almost full employment in the first decade of the 2000s, these were occupations of low techno-scientific activity (Saboia, 2009) and predominantly for up to two minimum wages (IPEA, 2020). In the same vein, the rise in education numbers followed the labor market, providing a labor force in the terms of the resumption of the economic agenda that has put the country in a state of recolonization, with policies that are still modest for the advancement of science and technology.

Given this, Kuenzer (2000) clarifies that the proposals for Brazilian education have been an integral part of the economic model course since the 1990s and do not point to the integral formation, where "[...] the professional qualification comes to rest on

cognitive and behavioral knowledge and abilities that allow the intellectual mastery of technique and forms of social organization" (Kuenzer, 2000, p. 19), originally and creatively based on knowledge. Rather, it is well-defined for a low-dynamic economic market whose workforce training is for intermediate occupations. Even if the economic structuring experienced in the last decade of the last century has expanded the integration of the country with the world trade chain, the worker's training is still unsatisfactory and inadequate to interact with new technologies (Lima Filho, 2015).

This scenario gives rise to what Macario *et al.* (2018) call the precariat, a new class of workers, young and highly educated, but immersed in uncertainty and chronic insecurity. Without converting their years of study into better jobs, they end up subjecting themselves to brutal precarization of labor relations due to a mediocre demand for occupations that the country has plunged.

Focused on basic products, an obstacle to intensification and renewal of technology in the domestic market (Marini, 2013), this economy has mobilized all kinds of expedients to meet the functionality of the productive structure, where minimum skills are sufficient (Deitos, R.; Lara, 2016). With this economic profile, the school needs to meet the wishes of the ruling class, with training for demanded occupations, focused on mass production of homogeneous products and little diversity, which does not require high investment in technical, scientific, and technological knowledge for its execution.

Therefore, education in Brazil, as Kuenzer (2007) asserts, is surrounded by problems that will not be solved only in pedagogical terms, but also in political ones, because there is a resistant and growing structure that prevents the development of a knowledge society (Castells, 1999), and finds receptive policies for a knowledge economy (Mészáros, 2008), which avoids values contrary to the political order and guarantees labor force to move the wheel of this economy.

However, it is important to note that this does not mean that education is doomed to a purely reproductive and plastered condition. The school is a space of dispute, so it should not be taken only one way, in the terms of the ruling class, because the writing of its history does not happen unilaterally but in the resistance of several actors.

References

ABÍLIO, Ludmila Costhek. Uberização do trabalho: subsunção real da viração. **Instituto Humanis Unisinos**, São Leopoldo, v. 17, n. 503, p. 20-27, 2017. Disponível em: http://www.ihu.unisinos.br. Acesso em: 06 jun. 2018.

APEXBRASIL. Agências Brasileiras de Promoção de Exportações e Investimentos. As exportações brasileiras e os ciclos de commodities: tendências recentes e perspectivas. **Conjuntura & Estratégia**, Brasília, DF, 2011. Disponível em: www.apexbrasil.com.br. Acesso em: 15 abr. 2020.

ALTMANN, Helena. Influências do Banco Mundial no projeto educacional brasileiro. **Educação e Pesquisa**, São Paulo, v. 28, n. 1, p. 77-89, 2002.

AZZONI, Carlos Roberto. Trabalho e sociedade - desenvolvimento sustentável: desafios e oportunidades para o futuro do trabalho. *In*: **OIT. Organização Internacional do Trabalho**. Futuro do trabalho no Brasil: perspectivas e diálogos tripartites. Brasília, DF: OIT, 2018. p. 48-52.

BRASIL. Ministério da Economia, Indústria, Comércio Exterior e Serviços (MDIC). **Estatísticas do comércio exterior**. Brasília, DF: MDIC, 2019a. Disponível em: http://www.mdic.gov.br. Acesso em: 05 jun. 2019.

BRASIL. Ministério do Trabalho e Emprego. **Classificação Brasileira de Ocupações (CBO)**. 3. ed. Brasília, DF: CBO, 2010.

BRASIL. Ministério do Trabalho e Emprego. **Programa de disseminação das estatísticas do trabalho**. Brasília, DF: MTE, 2019b. Disponível em: http://pdet.mte.gov.br/caged. Acesso em 11 nov 2019.

BRASIL. Ministério do Trabalho e Emprego. **Programa de disseminação de estatísticas do Trabalho**: Relação Anual de Informações Sociais (RAIS). Brasília, DF: MTE, 2018. Disponível em: www.mte.gov.br. Acesso em: 20 fev. 2018.

BREDOW, Sabrina Monique Schenato; LÉLIS, Marcos Tadeu Caputi; CUNHA, André Moreira. O ciclo de alta nos preços das commodities e a economia brasileira: uma análise dos mecanismos externos de transmissão entre 2002 e 2014. **Economia e Sociedade**, Campinas, v. 25, n. 3, p. 695-731, 2016.

BRESSER-PEREIRA. Luiz Carlos, MARCONI, Nelson; OREIRO, José Luis. The Dutch Disease. *In*: BRESSER-PEREIRA. Luiz Carlos, MARCONI, Nelson; OREIRO, José Luis. **Developmental macroeconomics**: new developmentalism as a growth strategy. London: Routledge, 2014. p. 56-73. Disponível em: www.bresserpereira.org.br/papers-cursos. Acesso em: 12 dez. 2019.

CANO, Wilson. **A desindustrialização no Brasil**. Campinas: Instituto de Economia, 2012. (Textos para discussão, 2000).

CARVALHO, David Ferreira; CARVALHO, André Cutrim. Desindustrialização e reprimarização da economia brasileira contemporânea num contexto de crise financeira global: conceitos e evidências. **Revista Economia Ensaios**, Uberlândia n. 26, p. 35-64, 2011.

CASTELLS, Manuel. **A sociedade em rede**. São Paulo: Paz e Terra, 1999.

DEITOS, Maria Lucia Melo de Souza. As políticas públicas de qualificação de trabalhadores e suas relações com a inovação tecnológica na indústria brasileira. 2006. 276p. Tese (Doutorado) – Universidade Estadual de Campinas, Faculdade de Educação, Campinas, 2006.

DEITOS, Roberto Antonio. **Os motivos financeiros e as razões ideológicas da política educacional paranaense para o ensino médio e profissional**. [*S. l.: s. n.*], 2019. No prelo.

DEITOS, Roberto Antonio; LARA, Ângela Mara de Barros. Educação profissional no Brasil: motivos socioeconômicos e ideológicos da política educacional. **Revista Brasileira de Educação**, Rio de Janeiro, v. 21, n. 64, p. 165-188, 2016.

DOURADO, Luiz Fernandes. Políticas e gestão da educação básica no Brasil: limites e perspectivas. **Educação & Sociedade**, Campinas, v. 28, n. 100, p. 921-946, 2007.

FEIJÓ, Carmem Aparecida; CARVALHO, Paulo Gonzaga Mibielli de; ALMEIDA, Julio Sergio Gomes de. **Ocorreu uma desindustrialização no Brasil?** São Paulo: IEDI, 2005.

FERNANDES, Florestan. **A Revolução Burguesa no Brasil**. 2. ed. Rio de Janeiro: Zahar, 1976.

FRIGOTTO, Gaudêncio. Fundamentos científicos e técnicos da relação trabalho e educação no Brasil de hoje. *In*: LIMA, Júlio César França; NEVES Lúcia Maria Wanderley (org.). **Fundamentos da educação escolar do Brasil contemporâneo**. Rio de Janeiro: Fiocruz, 2006. p. 233-263.

FRIGOTTO, Gaudêncio; CIAVATTA, Maria. Educação básica no Brasil na década de 1990: subordinação ativa e consentida à lógica do mercado. **Educação & Sociedade**, Campinas, v. 24, n. 82, p. 93-130, 2003.

FURTADO, Celso. **Formação econômica do Brasil**. 32. ed. São Paulo: Companhia Editora Nacional, 2005.

IBGE. Instituto Brasileiro de Geografia e Estatística. **Estatísticas econômicas**. Brasília, DF: IBGE, 2019. Disponível em: https://www.ibge.gov.br/. Acesso em: 21 nov. 2019.

IBGE. Instituto Brasileiro de Geografia e Estatística. **Pesquisa nacional por amostra de domicílios contínua-PNAD contínua**: educação 2007. Brasília, DF: IBGE, 2007. Divulgação anual.

IBGE. Instituto Brasileiro de Geografia e Estatística. **Pesquisa nacional por amostra de domicílios contínua-PNAD contínua**: educação 2017. Brasília, DF: IBGE, 2017. Divulgação anual.

IDADOS. Cresce o descasamento entre o número de pessoas com nível superior e o número de vagas de trabalho que demandam essa formação. **Idados**, 11 dez. 2019. Disponível em: https://idados.id. Acesso em: 20 de jan. 2020.

INEP. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. Educação básica. Brasília, DF: INEP, 2020. Disponível em: http://portal.inep.gov.br/. Acesso em: 15 mar. 2020.

INEP. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. **Panorama da educação**: destaques do Education at a Glance 2019. Brasília, DF: IBGE, 2019a.

INEP. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. **Resumo técnico**: censo da educação básica 2017. Brasília, DF: IBGE, 2019b.

IPEA. Instituto de Pesquisa Econômica Aplicada. **Desenvolvimento regional no Brasil**: políticas, estratégias e perspectivas. Rio de Janeiro: IPEA, 2017. Disponível em: http://www.ipea.gov.br. Acesso em: 10 abr. 2019.

IPEA. Instituto de Pesquisa Econômica Aplicada. **Ipeadata**. Rio de Janeiro: IPEA, 2020. Disponível em http://www.ipeadata.gov.br/ Acesso em: 10 fev. 2020.

JANNUZZI, Paulo de Martino. **Indicadores sociais no Brasil**: conceitos, fontes de dados e aplicações. Campinas: Alínea, 2001.

KUENZER, Acácia Zeneida. **Ensino médio**: construindo uma proposta para os que vivem do trabalho. 5. ed. São Paulo: Cortez, 2007.

KUENZER, Acácia Zeneida. O ensino médio agora é para a vida: entre o pretendido, o dito e o feito. **Educação & Sociedade**, Campinas, v. 21, n. 70, p. 15-39, 2000.

LIMA FILHO, Domingo Leite. Expansão da educação superior e da educação profissional no Brasil: tensões e perspectivas. **Revista Educação em Questão**, Natal, v. 51, p. 195-223, 2015.

MACÁRIO, Epitácio *et al*. **Dimensões da crise brasileira**: dependência, trabalho e fundo público. Fortaleza: UECE; Bauru: Canal 6, 2018.

NASCIMENTO, Paulo Augusto Meyer Mattos; GUSSO, Divonzir Arthur; MACIENTE, Aguinaldo Nogueira. **Breves notas sobre escassez de mão de obra, educação e produtividade do trabalho**. Brasília, DF: Radar: IPEA, 2012.

MARINI, Ruy Mauro. **Subdesenvolvimento e revolução**. 4. ed. Florianópolis: Insular, 2013.

MÉSZÁROS, István. **A educação para além do capital**. 2. ed. São Paulo: Boitempo, 2008.

OCDE. Organização para a Cooperação e Desenvolvimento Econômico. **Education at a glance 2019**: OECD Indicators: Paris: OECD, 2019.

OREIRO, José Luis; FEIJÓ, Carmem Aparecida. Desindustrialização: conceituação, causas, efeitos e o caso brasileiro. **Revista de Economia Política**, São Paulo, v. 30, n, 2 (118), p. 219-232, abr./jun. 2010.

PARO, Vitor Henrique. **Administração escolar**: introdução crítica. 17. ed. São Paulo: Cortez, 2012.

PIRES, Manoel. O que aconteceu com o orçamento da educação? **Observatório de Política Fiscais**, Rio de Janeiro, 17 mar. 2019. Disponível em: https://observatorio-politica-fiscal.ibre.fgv.br/. Acesso em: 8 jul. 2020.

PRADO JÚNIOR. Caio. **História econômica do Brasil**. 26. ed. São Paulo: Brasiliense, 1981.

ROCHA-DE-OLIVEIRA, Sidinei; PICCININI, Valmiria Carolina; BITENCOURT, Betina Magalhães. Juventudes, gerações e trabalho: é possível falar em geração Y no Brasil? **Organizações & Sociedade**, Salvador, v. 19, n. 62, p. 551-558, 2012.

SABOIA, João. Tendências da qualificação da força de trabalho. Rio de Janeiro: UFRJ, 2009. (Estudo transversal, 04). **Relatório final do estudo transversal "Qualificação da Força do Trabalho"**. Projeto de Pesquisa "Perspectivas do Investimento no Brasil". Rio de Janeiro: Instituto IE-UFRJ / Campinas: IE-UNICAMP, 2008/2009.

SCHWARTZMAN, Simon; CASTRO, Claudio de Moura. Ensino, formação profissional e a questão da mão de obra. **Ensaio**, Rio de Janeiro, v. 21, n. 80, p. 563-624, 2013.

SHIROMA, Eneida Oto; MORAES, Maria Célia Marcondes de; EVANGELISTA, Olinda. **Política educacional.** Rio de Janeiro: Lamparina, 4. ed. 2011.

SOLIGO, Valdecir. A qualidade da educação: conceitos e debates acadêmicos. **Revista Pleiade**, Foz do Iguaçu, v. 13, n. 13, p. 1-22, 2013.

TPE. Todos Pela Educação. **Anuário brasileiro da educação básica**: 2018. Brasília, DF: Moderna, 2018.

UNCTAD. **United Nations Conference on Trade and Development**. [*S. l.*]: Unctade, 2018. Disponível em: www.unctadstat.unctad.org. Acesso em: 26 mar. 2020.

XAVIER, Maria Elizabete Sampaio Prado; DEITOS, Roberto Antonio. Estado e política educacional no Brasil. **Estado, Desenvolvimento, Democracia & Políticas Sociais**, Cascavel, p. 67-86, 2006.

Received on: 23.03.2021
Revised on: 10.05.2022
Approved on: 18.08.2022

Editor: Prof. Dr. Marcos Sidnei Pagotto-Euzebio

Luciano Edison da Silva he is a full professor with exclusive dedication, doctoral student in Education, researcher for the Group for Studies and Research in Educational and Social Policy (GEPPES, acronym in Portuguese) - and the Research Group for Mathematics Education and Technologies (GPEMT, acronym in Portuguese). He works in secondary level technical courses, initial and continuing education, undergraduate and graduate courses.

Roberto Antonio Deitos he is Associate Professor at the Universidade Estadual do Oeste do Paraná, researcher for the Group of Studies and Research in Educational and Social Policy (GEPPES). Effective teacher, works in the undergraduate and graduate course.