The Influence of Vocational Training on Brazilian Minority Groups: Social Mobility or Entrapment?

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Introduction

Historically, Brazil's educational system is known to have excluded minority groups and left a disproportionate amount of the population uneducated and illiterate (Davis, 2014). More specifically, educational inequality follows racial lines, justified by Brazil's colonial past, slavery, and the promotion of racial democracy throughout time (Htun, 2004; Neto et al., 2019). Educational and economic inequality in Brazilian society has almost always been traced back to one's social origin, emphasizing how social inclusion policies cannot be dissociated from economic prosperity (Leite, 2020). However, in 2012, university social quotas were implemented to improve the educational status of non-whites and lower-class Brazilian students, by reserving a percentage of university seats for those who self-identified as non-white (Schwartzman & Paiva, 2016; Martínez García et al., 2021). Due to the complexity of self-identification processes and the racial bias engrained in the educational system, vocational training offered another way to address the lack of education and facilitate labor market insertion (Francis-Tan & Tannuri-Pianto, 2015). Indeed, vocational education and training (VET) aim at granting people from the lower classes, young people and disadvantaged groups technical skills for specific professions, alleviating educational and economic marginalization and furthering economic growth (Wallenborn, 2010).

Vocational training serves two main objectives: Firstly, due to increasing labor market demands for skilled workers, VET contributes to adequately training employees to satisfy labor market demands (De Oliveira Silva t al., 2020). Secondly, VET bridges educational attainment and professional insertion, aiming at decreasing social inequality and increasing economic prosperity for minority groups (De Oliveira Silva t al., 2020). Though VET appears to be an appealing initiative offering social and economic benefits, existing academic and empirical debates question the efficiency and viability of vocational training for minority groups (Rambla et al., 2020). The literature criticizes VET's economic benefits and how growing and bettering human capital for those who lack education may translate in unequally distributed opportunities along social, racial and gender lines (Claus, 1990). In addition, some scholars further question the role of vocational training and its prospects of offering a second-class education, fostering existing inequalities (Wallenborn, 2010).

Moreover, Brazil presents an interesting case to examine vocational training programs as educational inequalities characterize Brazil's long-lasting issue with institutional racism, though nonwhite individuals comprise more than half of Brazil's population (Francis-Tan & Tannuri-Pianto, 2015). Indeed, Brazil hosts 56% of black Brazilians (NACLA, 2022), though non-white individuals are the most excluded from education and often occupy the lower classes (Marteleto & Dondero, 2016). Thus, the question driving this research is: *To what extent does vocational education and training (VET) restrain or enhance social mobility in the labor force for minority groups?* The prospects of vocational training appear to tackle issues of non-employment or lack of work skills for minority and lower-class groups. Examining the relationship between vocational training and the extent of social mobility for minority groups can draw lessons for other countries utilizing similar programs while contributing to the academic debate surrounding the relationship between human capital, education, and social equality.

Lastly, this paper will comprise four sections to answer the research question: first, a critical review of the existing literature on the effects of vocational training on human capital from Global North and South countries to explore the various outcomes from international perspectives. Secondly, the theoretical framework will include an overview of human capital theory (HCT), its perspective on social equality, and the relationship between education and the labor market. Consequently, segmented labor market theory (SLMT) will critique human capital theory, suggesting a dual labor market divided along gender, race, income, and social class criteria. This theoretical approach considers how geographical space, individuals' and job characteristics define the primary and secondary labor market and the reasoning behind segmentation. The third section will elaborate on data collection methods, the justification of a qualitative research design and the methodological steps in answering the research question. Then, the analysis will include a contextual overview of vocational training's objectives, followed by an analysis of VET in Brazil, then exploring students' insertion in the labor market, concluding with a discussion of the results and further considerations of this research. Finally, a conclusion will critically assess the findings, limitations, further academic research, and policy recommendations regarding vocational training in Brazil.

Literature Review: Vocational Training from International Perspectives

Identity, Culture and Stigma in Vocational Education

The relationship between vocational training and social mobility has furthered the debate on the role of education, whether it addresses or perpetuates inequality and whether VET merely endorses a capitalist perspective towards education by legitimizing stratification (Avis & Orr, 2016). The scholarly literature adopts various perspectives in understanding who benefits from vocational training and how successful outcomes are achieved. Studies range from statistical analysis of perceived benefits, the importance of culture in making VET an appealing educational initiative, to the importance of identity-building for working-class students (Kupfer, 2012; Escudero et al., 2020).

According to Kupfer (2012), the conditions and factors determining the lower classes' success in education have been traced back to one's family surroundings, their level of security and identity construction. Upon analyzing the factors contributing to upward educational mobility in the working class, the author concluded that gender roles or familial (in)security affected educational success (Kupfer, 2012). Education becomes crucial to their identity creation, such as endorsing gender expectations for being a provider to one's family, resulting in higher educational achievement for men (Kupfer, 2012). Although the study finds causal effects between working-class individuals and their contextual situation in pursuing higher education, it overlooks the institutional or financial barriers that may limit other social classes or minority groups from entering higher education from the beginning.

Moreover, Xiong (2011) takes a similar approach in investigating the contextual and cultural factors regarding vocational training in China. His study examines the dialectic between Confucianism and vocationalism, arguing that a focus on skills contradicts a culture that grants a higher value on theoretical knowledge and traditional higher education (Xiong, 2011). The author sheds light on the ongoing stigma and low social acceptability of VET, described as limiting critical thinking and humanities courses, impeding individuals from achieving upward mobility. This study demonstrates a consistent pattern of access to low-level jobs due to tough competition with individuals

with higher education diplomas (Xiong, 2011). Although the author's study focuses on Chinese educational culture and its elite-driven values, it demonstrates similar global trends in the societal and professional perception of vocational training. Xiong's analysis highlights the importance of culture in assigning added value to one's education, offering broader or more limited professional opportunities.

Similarly, Liu (2013) analyzed vocational education focusing on migrants in China and established similar results as Xiong's study (2011). Liu's (2013) results explain how vocational training allows individuals to acquire skills and enter the labor market, but significant inequality and stratification appear in VET outcomes. For example, though 50% of migrant workers approve of VET methods, his study finds a gap between vocational education and the desired results, such as low upward mobility, small chances of promotion or the continuity of cheap labor exploitation (2013). Moreover, Schmidt (2020) develops Liu's (2013) findings arguing that VET's success rates do not solely rest on VET itself but rather on structural predispositions of the education sector. The author examines VET in Australia from a critical social theory perspective, arguing that providing education to meet the industry's needs commercializes education, benefitting economic elites over excluded groups (Schmidt, 2020). She further argues that students become customers and educators as 'training entrepreneurs', endorsing a human capital perspective of education (Schmidt, 2020, p. 280). Her article criticizes overarching institutions and systems that implement neo-liberal policies, which only perpetuate existing social inequalities and limit these groups' aspirations and possibilities. Her driving argument explains how neo-liberal reforms such as VET cannot provide social mobility as it only aims to improve the working class's labor efficiency for increased economic gains (Schmidt, 2020).

Utilitarian versus Humanist Educational Approach: The Influence of Colonialism

Furthermore, Rambla et al. (2020) analyze the international influence on vocational education and training and the impact of cooperation between national governments and businesses in Chile and Brazil. They analyzed how the World Bank's recommendations on building vocational schools or the Washington Census influence national

policymaking. They argue that, though Chile and Brazil followed international recommendations, policy transfers cannot account for national complexities nor guarantee similar results (Rambla et al., 2020). Indeed, they illustrate how authoritarian regimes, import substitution industrialization, and privatization policies significantly impact how VET is funded and is coherent with government institutions, the labor market, and private companies. Their concluding remarks explain how international influence and recommendations cannot successfully guide educational policies, for disregarding cultural or institutional complexities, and the pre-existing structural inequalities in Brazil (Rambla et al., 2020).

In a similar approach, Maurer (2012) explains why and how Bangladesh and Sri Lanka's implementation of VET oppose international donors' priorities and recommendations. By adopting a historical institutional theoretical approach, the author demonstrates how the development of VET relied on national economic or political policies such as economic liberalization, structural adjustment policies or evolving legal regulations. By exploring critical junctures throughout Bangladesh and Sri Lanka's political sphere, education system, economy, history, and social needs, they argue that the influence of Western educational trends, such as the expansion of VET, is insufficient in explaining Bangladesh and Sri Lanka's case (Maurer, 2012). Maurer (2012) and Rambla et al. (2020) underline the importance of incorporating cultural and institutional dynamics in the development and results of VET to complement existing theories. By examining critical causal mechanisms impacting educational changes, they challenge 'diffusionist models emphasizing isomorphous developments' or functionalist theories aiming at explaining educational change (Maurer, 2012: 500). Though his article does not focus on social mobility or the rationale behind successful VET outcomes, it underlines a critical aspect in the literature that distinguishes VET results in Global North and Global South countries.

Indeed, Maurer (2012) and Rambla et al. (2020) hint at this ideological and contextual divide where Oketch (2007) recognizes the influence of colonial legacies in African countries such as Egypt, Ghana, Tunisia, Senegal and Botswana, to name a few. Oketch (2007) distinguishes between anglophone and francophone colonial ties, where anglophone countries offer programs with high levels of vocational content but low levels

of academic material. He argues that high levels of specific VET programs result in "dead-end" jobs and low possibilities of progression or movement between vocational and general education (Oketch, 2007). On the other hand, countries with French colonial ties demonstrate similar French educational patterns where a fair amount of broad content prevails but with few specific vocational courses. French influence results in a disconnect between VET programs and labor market needs, disregarding the opportunities to utilize apprenticeships and satisfy the artisanal sector's needs for example. Oketch (2007, p.222) draws an empirical parallel with Mark Blaug's critique of vocational training, arguing that it cannot be a solution for educational unemployment, nor can it form students for specific occupations and reduce the gap between education and the labor market. The reason for the limitations of VET analyzed in several African countries reveals a duality between addressing urban and rural unemployment and the role of agricultural or manual labor, which may be excluded from the VET curriculum. Secondly, there is a comparative advantage in academic skills as they are transferable throughout professions around the globe, compared to practical skills that lead to "dead-end jobs" (Oketch, 2007).

Though there is no extensive examination of inequalities, they illustrate apparent disparities in accessing general and vocational education for girls compared to boys, sharing similar arguments observed in the literature. Overall, Oketch's (2007) analysis of African countries shed light on the negative perception of VET, generally regarded as inferior and of last resort after general education. It has illustrated gender-based inequalities, difficulties in addressing rural and urban issues while demonstrating a higher enrollment rate for students coming from low socio-economic backgrounds. More importantly, the scholarship on VET in developing nations (Oketch, 2007; Liu, 2013; Maurer, 2012) do not draw similar conclusions and results to that of western or developed nations such as Austria, England or Australia (Kupfer, 2012; Schmidt, 2020). Indeed, Martínez García et al. (2021) argue that exporting European models also includes European cultural and social exportation, sometimes in opposition to local cultures and educational systems. In addition, Martínez García et al. (2021) argue that the implementation of VET programs reflects a duality between educational policies' social and economic functions, namely egalitarian participation and productive labor outcomes though increased human capital. Though an egalitarian participation approach to

education considers institutional factors contributing to inequality and aims at addressing them, a human capital approach individualizes educational outcomes. It renders students responsible for their successful educational and labor market achievements, disregarding overarching political, social and economic systems influences (Avis & Orr, 2016). Indeed, Avis and Orr (2016) demonstrate how the OECD's (2001) conceptualization of human capital as "The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being" reinforces the individualization of educational outcomes. Instead, implementing vocational education should account for how privilege is reproduced along racial, gender or class lines (Avis & Orr, 2016).

Furthermore, Martinez Garcia et al. (2021) emphasize how the direction of education is derived from social structure and preexisting inequalities in society (Martínez García et al., 2021, p. 132). Their study on educational systems in Spain, Finland and Brazil indicate tensions between "utilitarian, human capital theories, to the more humanist and civic-minded perspective" (Martínez García et al., 2021, p. 133). Watson (1994) complements this statement, emphasizing the cultural importance of educational policymaking and the Western biases and fallacies in applying Western educational concepts to non-Western countries. Indeed, by conducting a comparative analysis, Watson (1994) demonstrates how Western powers have shaped educational and political legacies in former colonies and how multilateral or bilateral aid agencies represent a continuity of transferring Western educational thinking. For example, Watson (1994) refers to linguist imperialism, arguing that language is not neutral. The production of Western knowledge in those languages undermines the production of indigenous knowledge while upholding the cultural elites (Watson, 1994, p. 87). Watson (1994) asserts that educational policy analysis must incorporate other fields of study, such as geography, social studies, and history, to name a few.

For example, the World Bank, the OECD or UNESCO, ignore cultural dimensions of societies, failing to reveal the "political or educational philosophy which undergirds an education system", whereby statistical reports on education need to be carefully examined in consideration to local cultural dynamics, gender or regional disparities (Watson, 1994, p. 94). The literature illustrates theoretical debates regarding the purpose and legitimacy of vocational education, examining the cultural influence of

educational policy transfer and the power relations rooted in them. Indeed, the literature demonstrates how the analysis of successful Western vocational programs can be served as lessons for Global South countries, illustrating the academic and political influence of Western educational thinking on non-Western societies. Indeed, educational policy transfer substantiates Watson's argument in ignoring "indigenous and distinctive socio-economic and cultural contexts" (Watson, 1994, p. 95).

Economic Returns, Social Stratification and Capitalist Division of Labor

Vocational education remains contested and is continuously examined to understand society's economic and social contributions. Neuman & Ziderman's (2003) article focuses on the economic gains and increasing wages of partaking in vocational training for minority groups in Israel. Their analysis illustrates explanatory factors of wages for women, recent immigrants, Jews of Eastern origin, and Israeli Arabs, offering policy recommendations to adapt vocational training for minority groups. Their analysis illustrates how Jews of Eastern origin were the only group that benefitted from a 10.9% wage advantage, if they worked in matching work positions. However, the same cannot be observed for the remaining groups (Neuman & Ziderman, 2003: 431). The authors argue how gender norms in specific working fields impact the positive wage outcome for women, illustrating how VocEd courses leading to blue-collar jobs are dominated by men, limiting opportunities for women (Neuman & Ziderman, 2003: 431). For example, the average hourly wage for men is 30 per cent higher than for women, indicating significant disparity along gender lines (Neuman & Ziderman, 2003: 429). In addition, immigrants possessing foreign vocational education cannot transfer those skills accordingly to local labor market needs and required skills, pushing the need to offer programs to update a set of skills. Overall, immigrants, women and Arab Jews did not present wage benefits for partaking in VocEd courses when working in matching occupations. This is due to the lack of transferability, the limited coverage of the Arab VocEd sector or gender norms that dictate the direction of women's courses and professions (Neuman & Ziderman, 2003: 431). Though positive gains and accessibility of vocational training courses exist in the literature, there is an overarching pattern of exclusion and stratification along gender, class, or race, to name a few.

These exclusionist findings are not all surprising considering the writings of American scholars Harvey Kantor and John Dewey in the early 20th century, arguing against the production of a school system that "socialized youth for their new economic roles", fostering the "capitalist division of labor" (Kantor, 1986, p. 402). David Snedden was a proponent of vocational education though his rationale is rooted in the American industrialization context to enhance "domestic competitiveness in expanding global markets" (Hyslop-Margison, 2000). For Snedden, vocational education signified meeting labor market needs by shaping students with assumed limited intellectual capacities, to satisfy the industrial regime (Hyslop-Margison, 2000). However, Dewey underlines how Snedden's reasoning only encourages social class stratification where vocational education is likely to become "an instrument in accomplishing the feudal dogma of social predestination" (Dewey, 1916, p. 318). Additionally, Kantor remained critical of vocational education as a tool to address social problems due to the limited successful empirical findings (Kantor, 1986). Though Kantor's observations date from the early 20th century, similar arguments can be found in recent scholars' work (Oketch, 2007; Liu, 2013; Neuman & Ziderman, 2003; Xiong, 2011). More critically, Bestor described the goals of vocational education to be rooted in capitalist and corporate objectives, where "students are rarely called upon to think of knowledge as the fruit of original inquiry", promoting liberal arts universities to engage students in critical thinking (Bestor, 1955, p. 79). These existing debates and considerations about vocationalism in the 20th century remain relevant to contemporary concerns. These scholars contextualize a historical logic that forged vocational education, namely, its roots in industrialization and social stratification in the American context. Although the American and Brazilian contexts have noteworthy differences, similar labor market expectations of productivity, economic returns and patterns of inequality exist both in the American and Brazilian context.

To conclude, examining the existing scholarly work highlighting the critiques and successes of vocational training from various countries considers how Western policy recommendations and colonialism are influential factors in determining the outcomes of VET. Indeed, the improvements needed in Western and non-Western VET programs differ drastically. On the one hand, the literature does not indicate much criticism or doubt in the efficiency of VET in Western countries, with Germany serving as an example of successful VET programs. However, in China, Brazil or some African countries, the

premise of vocational training and its objectives in alleviating unemployment and addressing social inequalities remains heavily contested and at times incompatible with local educational culture such as Confucianism, a challenge the West has not demonstrated (Oketch, 2007; Xiong, 2011). However, there is a relatively uniform perception of vocational schools for being of lesser value than traditional academic universities and for providing second-class education for second-class citizens. The literature on vocational training in the global south has drawn more emphasis on minority groups and reflects the state of the academic debate where vocational training remains contested for merely perpetuating inequalities rather than diminishing them. The literature suggests that the Western origins and logic of vocationalism and its prominence during industrialization ongoingly shape the gender, racial or class-based stratification. Regardless of social concerns, unlike higher university, vocational training skills appear to be less transferable among countries hindering upward mobility across various countries. In addition, a repetitive critique observed is the dissonance between VET skills and the labor market, as observed in African countries, underlining the lack of coherence between French-influenced policies and the need to focus on the artisanal sector for example (Oketch, 2007). The lacking compatibility between western institutions (World Bank, UNESCO) or Western countries' experience (France, Germany, England) with non-Western societies is also reflected in Maurer's (2012) and Rambla et al. (2020) work, providing a preliminary explanation for Brazil's case study.

In addition, through a historical and critical junctures approach, Maurer (2012) and Rambla et al. (2020) underline how local legal, historical, and political frameworks play an influential in explaining the outcomes of vocational training in Chile, Brazil, Sri Lanka and Bangladesh. The literature collectively indicates a lack of cohesion between vocational training skills and the labor market's needs, while others demonstrate the lack of wage benefits according to groups' origin or gender. More importantly, Kantor's (1986) and Dewey's (1916) concerns about American vocational training in the early 20th century demonstrate long-lasting and continuous critiques of a human capital design to vocational training, possibly incompatible with the promotion of social equality. Overall, the literature has demonstrated various obstacles and flaws with vocational training, whether empirically or theoretically, providing a preliminary understanding of VET to analyze Brazil's case. Analyzing Brazil's case of vocational training can

complement the existing literature by focusing on minority groups while shedding light on Global South countries. Unlike some studies found in the literature, this case study does not aim to examine the influence of international institutions in building VET, rather it will consider how the historical evolution of VET in Brazil and its roots in Western thought may explain the successes or failures of Brazilian vocational training. Similarly to Neuman & Ziderman's (2003) article, this study will primarily focus on minority groups for being historically excluded from the Brazilian educational system and examine if vocational training is an adequate response to address such inequality. Finally, as the literature regularly underlines concerns of vocational training promoting a human capital perspective of education and labor, the following section will consider the theoretical underpinnings of human capital theory to establish possible similarities and explanations of vocational training in Brazil.

Human Capital and Segmented Labor Market Theory

Considering vocational training is intrinsically forged in response to labor market needs while focusing on a skill-based program, various VET analyses adopt a human capital approach to understand its successes and limits. Indeed, human capital theory (HCT) offers a "knowledge economy" as a suitable response to poverty and low wages where increased educational attainment results in better wages and societal status while boosting economic growth (Gillies, 2012, p.245). Though human capital theory has been academically criticized, it questions the role of education, the profitability of earned skills, the labor market's structure, and its relationship with the socio-political context. Exploring human capital theory provides insight into the economic logic in addressing unemployment and social mobility to examine possible parallels with vocational training's reasoning and outcomes. However, human capital theory has been subject to academic debate and empirical questioning for disregarding institutional barriers for minority groups and overly instrumentalizing education. Segmented labor market theory (SLMT) offers theoretical explanations for HCT's shortcomings by exploring the mechanisms of labor market entrapment, social stratification and the presence of 'core' and 'periphery' industry sectors (Bauder, 2001; Leontaridi, 1998, p.79).

Indeed, the literature review identified various obstacles to vocational training for minority groups and limited upward mobility possibilities justified by social, educational,

and economic stratification. Examining the historical evolution of human capital theorist' justification for a knowledge economy and how it aims to reduce poverty and increase wages offers a first explanatory answer to the successes of vocational training in Brazil. However, considering the limitations of vocational training and its human capital-derived logic, segmented labor market theory explains how the dual labor market explains ongoing inequalities and inconsistencies in training and limited social mobility (Piore, 1971). Firstly, this section will present the core understanding and findings of human capital theory and its subsequent limitations. Then, derived from HCT's limitations, segmented labor market theory will examine how the dual labor market explains how culture, space, race, class, behavior and gender compose hierarchies of the labor market and how education safeguards this segmentation. Offering a theoretical examination and critique of these two theories (HTC and SLMT) allows for the analysis to have solid theoretical grounds in offering explanatory answers Brazil's vocational training outcomes.

The Origins of Human Capital Theory

In response to the political and economic depression of the 1960s, the founders of human capital theory, Schultz and Becker, offered a politically appealing causal relationship between educated societies and economic growth (Gillies, 2012). In examining wage difference and income distribution, the theorists examined how educational earnings affected financial return, whereby education shifted from a "consumption" to an investment (Gillis, 2012, p. 226). Following WWII, they observed how countries such as Japan and Germany overcame such economic and political hardship by developing well-educated countries, contributing to their economy's growth (Gillies, 2012). Therefore, the premise of HCT is to examine how education can improve the workforce's quality and increase workers' wages (Woltermann, 2004; Gillies, 2012). More precisely, human capital theorists consider education as an investment and humans as capital goods, whereby the increase in skills contributes to higher productivity resulting in higher or better-paid jobs (Woltermann, 2004; Gillies, 2015). The parallel drawn between humans and workers as capital goods reflect a reductionist and instrumental consideration of people as "mechanical objects" rather than humanizing them (Maringe, 2015, p.3). Therefore, education becomes an economic investment resulting in reduced unemployment, enhanced career prospects and social stability (Maringe, 2015).

According to human capital theory, labor is a commodity, whereby education contributes to increasing or decreasing labor's value in the labor market (Harrison & Sum, 1979). More specifically, Harrison & Sum (1979) argue that "wage rates are market prices, and these adjust to reflect the relative surplus or scarcity of labor power" (p.694). The labor market is composed of institutions that mediate and determine the purchase and value of labor whereby the labor process is defined as the "consumption" of labor production or activity (Leontaridi, 1998, p. 73). After the economic and political promotion of HCT and the apparent positive correlation between higher education and higher employability, HCT's accuracy is decreasing through time and societies (Marginson, 2019). Though studies have underlined the lack of equality of opportunity in education, HCT maintains the idea of merit as a legitimizing power in explaining one's labor market status (Marginson, 2019, p.288). The theory presents a linear and homogenous perspective on education and work while disregarding the numerous factors and social relations transitioning from school to work (Marginson, 2019, p.290). Unlike HCT, Bourdieu includes "family cultural capital and social capital networks" as core components influencing one's social status rather than mere "dispensable add-ons" (Marginson, 2019, p.290).

Indeed, human capital theory primarily adopts an individualistic approach satisfying both economic-centered goals while arguing for the equalizing effect on income and status (Sobel, 1982). Rather than incorporating a country's context to understand a social phenomenon, human capitalism examines solely the individual's beliefs and desires, separated from the social or institutional context (Tan, 2014). Therefore, employees in low-wage occupations providing low productivity are perceived as unwilling to gain the necessary skills to access higher-paying jobs (Dickens & Lang, 1985). As a result, human capitalism stipulates that providing workers with access or incentives to increase their skills will eliminate poverty (Dickens & Lang, 1985, p. 792). The logic of vocational training is reduced to the labor market's economic needs rather than worker's desires and aspirations. Whether from Western or Global South countries, scholars have utilized human capital theory arguing that increasing a skilled workforce coherently with a nation's needs and industries can reduce poverty (Tomé & Goyal, 2015).

From a BRICS perspective, Tomé & Goyal argue that VET helps "drive the engine of industrial and economic growth of nations" (2015, p.591). However, Gillis (2015, p.4)

examines the shift from developing knowledge to transferable skills according to "market profitability", where training costs are shifted from the private sector to the educational sector. Indeed, Brown & Lauder (2006, p.26) describe the shift from "issues of ownership" to investing and competing for human and intellectual capital. Previously, nations' power predominantly came from investing in material forces and production whereas currently there is "a new and productive partnership between 'head' nations, which design products, and 'body' nations, which manufacture them (Rosecrance, 1999, p. xi). Therefore, the relationship between educational, or vocational courses and the labor market are partly influenced and structured according to national and international production dynamics. The shift from manufacturing goods nationally to what is described as "low economies" or "body" nations represents similar differences from the Global South to the Global North (Brown & Lauder, 2006, p.26,27). This duality in pursuing "knowledge capital" or utilizing low paid labor is not visible in human capital theory, internationally homogenizing the relationship between education and labor market's needs.

Moreover, Maringe (2015) has identified inconsistencies in educational and financial returns along gender, racial or class-based lines as for the influence of a school's positive or negative reputation in obtaining certain job positions. More specifically, Gillis (2015) argues how disregarding political and social structures in developing an educational system detached from a human-centered approach goes against children's right to a fair, equitable and adaptable education. Additionally, critics found inequalities and institutional barriers between the labor market and the labor process, creating separate segments defined along racial, behavioral, social lines or working conditions, characterized as segmented labor market theory (Leontaridi, 1998, p. 73).

Segmented Labor Market Theory: Culture, Dual Markets and Stratification

Segmented labor market theory aims to explain wage disparity between sections and groups, criticizing economic theory and the homogenous nature of the labor market (Piore,1994). The examination of segmented labor theory commenced in the 1960s and is defined as "the historical process whereby political-economic forces encourage the division of the labor market into separate submarkets, or segments, distinguished by different labor market characteristics and behavioral rules" (Reich, Gordon, & Edwards,

1973, p.359). To explain the disparity in income distribution, segmented labor market theory argues that two markets exist and separate job opportunities along these characteristics. On the one hand, the primary market represents "the good jobs" characterized by economic security, career advancement good working conditions, equity, and competitive wage (Leontaridi, 1998, p.69; Dickens & Lang, 1988; Doeringer & Piore, 1971). On the other hand, the secondary labor market reflects the 'bad jobs', generally low-skilled in poor conditions, little benefits with little career mobility and low wages (Leontaridi, 1998, p.69; Dickens & Lang, 1988; Doeringer & Piore, 1971). According to Piore, "the secondary sector has jobs that are decidedly less attractive, compared with those in the primary sector. […]The poor are confined to the secondary labor market" (1994, p. 359). The author identifies how behavioral or social traits such "race, demeanor, accent, educational attainment, test scores" are often statistically correlated with lower job performance resulting in exclusion from the primary labor market (Piore, 1994, p.359). He argues that employment decisions rely on these traits to confine workers in the secondary labor market, contesting how training or counselling fosters this duality. Rather, he offers policy recommendations such a promoting policy that address employment environments or discrimination.

Moreover, in regard to the various working conditions per labor market, Berntson et al. (2006) argue that the primary labor market workers are less likely to work in threatening environments, avoid chemically hazardous spaces, and be exposed to physical damage. Indeed, workers are more likely to make 'ergonomic demands in their work' (p. 228) and engage in more physiologically demanding rather than physically. As such, segmentation theory contends that the institutional rules and barriers limit intersectional mobility, limiting access to the primary labor's "good jobs" (Leontaridi, 1998, p.64). Furthermore, Carnoy (1980) explores the relationship between education and employability within a segmented labor market. Carnoy (1980) suggests that the capitalist nature of the labor market dictates the disproportionate number of poor people sharing similar traits in Piore's (1994) list. Indeed, due to the institutional and social barriers of poor people to occupy primary labor market jobs, it is the primary labor market's interest to sustain a "the reserve army of the unemployed" including the exploitation of women and young and colored people (Carnoy, 1980, p.112). Following Carnoy's argument, education is not a successful tool to raise employment 'because it is the nature of the labor market and the

capitalist control of that market which determine the level of unemployment and those who are more susceptible to being unemployed' (1980, p.112). The relationship between education and skills and its economic returns drastically differs from the primary to the secondary labor market. Indeed, Hagner's (2000) empirical study supports segmented labor market theory demonstrating how secondary jobs that require few skills hinder workers the possibility of building transferable skills to move up to primary labor.

In addition to racial, gender and class-based obstacles in the labor market, Bauder (2001) elaborates on the constitutive relationship between cultural differentiation on segmentation theory. She highlights the political, economic, and social processes created in a "spacial container", underlining the social nature of labor and its constitutive force in reproducing a segmented labor market, defined as social closure. Social closure refers to specific ethnic, gender-based or class-based groups having control over the labor market "and when segmented workers reproduced their position in society" (Bauder, 2001, p.40). She describes how residential segregation results from "place specific cultural experiences" focusing on the supply side of labor segmentation and the creation of working-class subcultures and spatial entrapment (2001, p. 44). In addition, though Piore (1994, p.359) defines statistical discrimination as individuals excluded from the primary labor market for possessing the "wrong traits" such as race, gender, educational attainment, accent, and class, to name a few. From a cultural and spacial perspective, Bauder (2001) argues how statistical discrimination presumes a homogenous labor market identity of individuals founded upon "cultural labels of place" such as cultures of poverty and overall underclass representations (p.45). Overall, the author argues how culture and place are constitutive agents influencing labor market segmentation demonstrated through stigma or negative connotations.

Waddoups & Assane (1993) complemented segmented labor theory's description of institutional discrimination from a gender perspective. They describe how white males are overly represented in the primary segment, whereas women are overly present in the secondary segment, suggesting a lack of mobility between segments (Waddoups & Assane, 1993). These scholars have criticized the unequal advantages in the labor market and how education not only fosters such inequalities but is the backbone of ensuring such inegalitarian access to employment. Similarly, Brown and Lauder (1992) argue that capitalist societies fashion educational policies in a way that molds their "'products' to

the demands of a modern industrial society" (p.5). Fashioning individuals' education this way inherently underlines a mirroring perception of students as forms of production whereby reforming education implicitly "involves winners and losers" (Brown & Lauder, 1992, p.5). Brown & Lauder (1992) examine the rationale towards general and technical training, questioning whether it only fosters already existing inequalities, arguing that "the question of the 'specialist' versus 'generalist is not only one about the most efficient way of training for one's future role in the technological society. It is a question which is intimately linked to cultural definitions of what is to count as 'education and one's subsequent position in the system of social stratification" (Brown & Lauder, 1992, p.6). Unlike human capital theory, SLM economists argue that education merely reflects a "screening device or a certificate of a set of attitudes and traits that employers find attractive, such as skin color, cogeniality, and pliability" (Cain, 1976, p. 1219). Indeed, the purpose and impact of education differ in both schools as SLM theorists have argued how the aim of education is not to transfer skills and thus better productivity and increase income, but rather to "verify his 'trainability' and confer upon him a certain status" (Thurow, 1972, p.168 cited in Cain, 1976, p. 1245).

To conclude, human capital theorists and segmented labor market theorists examine the role and influence of education in the labor market. On the one hand, human capital theory argues how increased education offers the necessary knowledge and skills for better productivity and financial outcomes. Though the literature review has identified shortcomings in HCT's logic, theorists argue that the lack of financial returns and upward mobility rests upon individuals' lack of initiative and motivation to perform efficiently throughout education and in the labor market (Tan, 2014). On the other hand, segmented labor theory explains the lack of financial returns after educational attainment merely as a continuum of a stratified society whereby it positively serves those in the primary segment and negatively those in the secondary segment. More specifically, human capital theory critics argue how assimilating students as products with the potential of return on investment and boosting a nation's economy is rooted in inequalities and a reductionist approach. Indeed, SLMT considers how education creates a "reserve army of unemployed people" (Carnoy, 1980, p.112), whereby capitalist societies prescribe which groups belong to unemployment and to what extent.

Bauder (2001) expands this argument and examines how spaces and cultures are segregated and viewed negatively, resulting in spacial entrapment. Bauder (2001) and Brown & Lauder (1992) include other factors contributing to the lack of employment possibilities, opposing how higher education or vocational training can solely affect one's status in the labor market. Indeed, a sub-section of SLMT, namely, dual labor market theory, identified the secondary labor market composed of individuals subject to behavioral, racial or class-based stratification, referred to as social closure (Piore, 1994; Bauder, 2001). The relationship between stratified education results in a stratified and segmented labor market whereby their employment possibilities are hindered by their identity characteristics resulting in primarily having low-wage jobs, little job security and advancement opportunities in their career. Contrarily, the primary labor market offers stable and growing work opportunities in safe work environments involving few physically demanding occupations (Berntson et al., 2006). Including institutional and social components in understanding entrance to the labor market and social mobility possibilities define the differences with human capital theory. Education is contested as an economic tool to reproduce existing inequalities for viewing individuals as objects to improve productivity, whereby the most privileged certify their status through education (Thurow, 1972, cited in Cain, 1976). As such, exploring the characteristics of both theories offers the necessary concepts and explanations to examine Brazil's successes and disparities in vocational training.

Research Design and Methodology

With a growing need for skilled workers in the labor market, vocational training aims to grant technical education to those lacking basic or general education, offering upward social, economic and educational mobility and reducing inequalities in Brazilian society (Wallenborn, 2010). The research question will require a two-part analysis: first, incorporating statical evidence of VET programs reflect the limits and opportunities of VET for minority groups by focusing on enrollment rates, graduation and accessibility from gender and racial perspectives. Secondly, the evaluation of VET illustrates how it successfully offers skills for students in obtaining jobs and examine if they pertain to their field of study and expected financial benefits. This second section tests SLMT by identifying factors and statistics that indicate inconsistencies, lack of job attainment or

wage benefits. This research design will include the qualitative methods adopted, the justification of sources selected, the two-part step in answering the question, how both theories will be incorporated and conceptualizing social mobility.

First, the theoretical relevance of this research requires a qualitative approach to provide detailed descriptions and make causal inferences about VET's influence on the labor market (Gerring, 2017). Considering the prevalence of human capital theory and its consequent criticisms, the congruence method will test these theoretical approaches to identify the theories' expectations and determine their validity through this case study (Blatter & Haverland, 2012). The congruence method aims to evaluate the explanatory relevance of theoretical approaches by identifying observable implications in the selected case study (Blatter & Haverland, 2012, p.144). Because both theories present opposing expected results of VET outcomes, the congruence method can theoretically test VET's logic by incorporating statistical results of VET and its influence on job attainment in the labor market.

The descriptive statistic method will numerically present VET outcomes (enrolment, graduation, dropout) per race and gender and illustrate any disparities or inconsistencies with labor market needs or employment opportunities. This method utilizes recent and historical data to identify patterns within a population by presenting a summary of the frequency of individual values for a variable (Villegas, 2022, August & Allen, 2017; Trochim, n.d.). Indeed, the frequency distribution method aims at describing a population or sample of a population by providing categorical information on the number of occurrences "by summarizing the information into meaningful intervals" (Allen, 2017). In Brazil's case study, this method is appropriate to create charts and histograms describing a gender or race frequency distribution of VET graduation, job attainment, and wages, to name a few.

The structure of the research question's analysis includes two sub-questions; first, it will focus on evaluating VET from a gender and race perspective to consider how this educational approach positively satisfies the needs of minority groups. As such, the driving questions are as follows: Do VET outcomes (graduation, enrolment, dropout) present any racial/gender stratification? How do VET outcomes reflect HCT and SLMT's

logic? For example, the Sinopse Estatística da Educação Profissional Técnica e Tecnológica presents statistics on graduation, enrolment, dropout, the field of course and enrolment per region, race and gender. Additionally, the Pesquisa Nacional por Amostra de Domicílios Contínua, among other sources, underline how VET is not accessible for individuals along gender and racial lines, describing preliminary limits of VET. The frequency distribution method is particularly relevant for this research as it focuses on a specific population sample (per gender and race) to identify the rate of exclusion/inclusion of VET programs. Secondly, the analysis will focus on VET coherence with the labor market and the jobs acquired according to VET attainment. The driving questions are: how do VET courses and skills obtained match their job characteristics? How do job/employee characteristics represent a segmented labor market? To what extent are VET students employed after graduation? In what labor market sector do VET graduates predominate? This section will utilize the frequency distribution method to identify patterns of exclusion when entering the labor market.

These sources help identify manifestations of a segmented labor market theory or a homogenous description of increased employment due to VET among all groups. Overall, a descriptive statics method allows incorporating several indicators, such as the enrolment rate, graduation rate, employment of skilled workers by sector, the average income, dropout rates and the overall evolution of these indicators between 2018 to 2022 present in the following sources. These sources, among others included in the data collection segment, provide compelling data to examine VET's coherence with labor market needs and its suitability for minority groups.

Data Collection

The collection and analysis of local and international data revolve around the definition of social mobility, a concept that drives this thesis. *Social mobility* can be defined as improving educational status, wage and possible upward social class, underlining why the examination of these indicators can reflect the existence of a dual labor market or, instead, better the social and economic situations of VET participants. Therefore, the collection of data includes primary Portuguese sources from the Brazilian Ministry of Education, the National Institute of Educational Studies and Investigation (INEP), Data

Viva, Serviço Nacional de Aprendizagem Industrial (Portuguese language for National Service for Industrial Training) and international organizations such as Inter-American Development Bank and the OECD to name a few.

Indeed, the National Institute of Educational Studies and Investigation (INEP) is an agency linked to the Brazilian Federal Ministry of Education responsible for evaluating the quality of the educational system. In 2021 the INEP published an excel file called 'annual statistics of professional and technological education in 2019[1]' providing "structured information on the modalities of professional courses in Brazil, covering the professional qualification courses, professional technical education medium level (technical courses), professional technological education undergraduate (higher technology courses) and postgraduate (professional master's and doctoral degrees)[2]". Though they do not extensively describe the relationship between vocational education and labor outcomes and opportunities, they provide a baseline for recent vocational education successes and limits.

More importantly, the Ministry of Education published a 2020 report including the National Assessment of SENAC Graduates and Integration into the Labor Market, illustrating statistics, surveys and testimonies of VET graduates regarding their transition in the labor market, the benefits of VET and the coherence of acquired skills compared to labor market needs (Moraes et al., 2020). Moreover, the Brazilian Institute of Geography and Statistics published the "Continuous National Sample Survey of Households" in 2019, underlining various educational indicators and reasons for dropout. Secondly, they elaborate on the number of people above 14 years old enrolled in vocational school and their providers (Public institution, Institution of the National Apprenticeship Services, Enterprise in which you work or Other private institution).

Overall, this diverse set of data from local and international perspectives highlights various factors that define the possibility of upward social mobility. Indeed, VET outcomes along gender and racial lines while exploring the reasons for a dropout can (de)legitimize human capital's homogenous understanding of educational provision.

[1] Translated by author
[2] Translated by author

Moreover, while exploring the industries that hire skilled workers the most, the possible disconnect in skills provision and needs may describe similar characteristics of a dual labor market. The following section will elaborate on Brazil's educational structure, the evolution of VET in Brazil and the growing need to match educational opportunities with labor market needs.

Analyzing Vocational Training in Brazil

This analysis aims to identify the extent to which vocational education successfully provides minority groups skills to better their social mobility in the labor market. As such, a contextualization of Brazil's introduction to VET describing its purpose in responding to current social disparities within the educational and labor market sector. Additionally, an overview of the evolution of Brazil's labor market and the current skills needed provides the baseline to understand whether vocational training adequately coincides with labor market needs. Lastly, the contextualization includes a brief overview of social disparities in education and how vocational education and training aims at addressing these inequalities. Then, the study includes a two-part response to the research question by firstly conducting a statistical frequency distribution analysis of VET outcomes and identifying manifestations of HCT or SLMT. Secondly, this study will examine whether VET outcomes and provided skills result in coherent job employment while examining job characteristics and wages to identify a potential dual labor market and social stratification patterns. After presenting the results of this analysis and how human capital theory and segmented labor market theory explain VET as a tool for social mobility for minority groups, a conclusion will present this study's overall academic and empirical findings, limitations, and recommendations for future studies.

Contextualizing Vocational Training in the Brazilian Labor Market

Vocational training is presented as an educational tool linked to labor market needs while being an opportunity to reduce social disparities and address an overall stratified educational system. Historically, studies demonstrate a gap in access to education between white and non-white individuals, as it was in 2006 when white individuals over 15 studied on average eight years compared to 6.3 years for non-white individuals (Cicalo, 2013). Similarly, in 2009, statistics show that 21.6% of white people were in higher education compared to 8.3% of black people though Brazil's population is 50.7%

black, underlining the proportionate effect on Brazil's population (Bernardino-Costa et al., 2017; IPEA, 2012). In 2019, according to the Brazilian Institute of Geography and Statistics, young black and brown individuals were 50% less likely (18.3%) to attend higher education, compared to 36,6% for white people (Gonçalves & Catelli, 2021). Though Brazil has implemented racial quotas and pushed for affirmative action in increasing access to education for people of color, the statistics demonstrate disproportionate disparities between white and colored Brazilians in accessing and obtaining an education. Therefore, vocational training programs can offer positive prospects in attaining education and transition in the labor market for Brazilian lower classes and people of color in Brazil.

The growth of vocational training programs is rooted in rapid industrialization in the 1940s and the increasing need to supply skilled and qualified workers per industry, vocational training, formerly called industrial training, pathed the way in linking education to the labor market (De Paula Guibert et al., 1980). The political willingness to increase VET focuses on socially excluded groups from the labor market to facilitate their access, illustrating how VET is both an educational and social mobility tool (De Freitas Barbosa, 2015). According to Portal Industrial (n.d), they define vocational education as a "learning model focused on the development of skills and technical skills to meet the demand of the labor market[3]" by providing free access to courses for those lacking skills. Consequently, in 1942 the Vargas government created SENAI (National Service of Industrial Learning) though it remained unpopular and unsuccessful until the 1990s with the introduction of trade liberalization with a growing economic focus on the service sector and high-tech industry (Villalobos Barría & Klasen, 2016).

Ultimately, SENAI is an institution that provides courses and training to students, with no affiliation to companies or industries, whereby graduates are responsible for finding employment (Villalobos Barría & Klasen, 2016). In addition, PRONATEC (National Program for Access to Technical Education and Employment), implemented in 2011, remains a popular program aiming at expanding the range of technical and professional courses available, which "consists of initial and ongoing training, which lasts 160 hours,

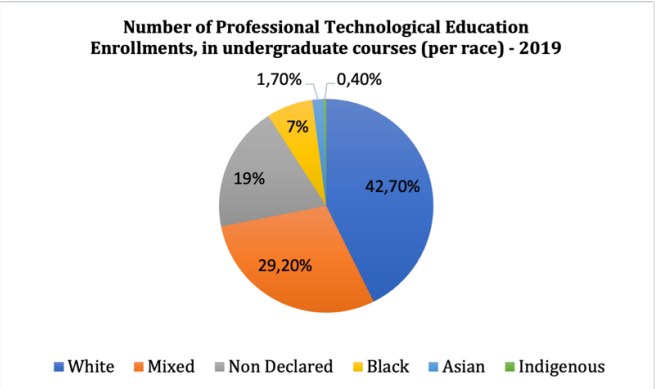
[3] Translated by author

for the insertion in the labour market" where its courses are provided by SENAI and SENAC (Social Protection Organization., n.d; Rambla et al., 2020). Overall, VET presents a social and economic rationale by reducing poverty and inequality and facilitating labor market entrance for disadvantaged groups (women, youth…) (Cecchini, 2019). Initially, in 1942, the implementation of SENAI aimed at pushing VET programs toward employment in the industrial occupation. Four years later, SENAC favored the commerce and service sector, offering various VET programs and branches per industry and sector (De Freitas Barbosa, 2015, p.5). According to Portal Industrial (n.d), prospective areas of demand from 2019-2023 are metalworking, civil construction, logistics and transportation, underlining a rise of technology-related professions. Previously, the International Labor Organization published a report in 2015 describing Latin American countries' "skills development in key sector of the economy" where Brazilian tourism, logistics, agri-food industry the automotive industry and construction sector present opportunities for investing in vocational training to satisfy these sector's growing employment needs (Vargas Zúñiga, 2015, p.35). Though labor market needs have evolved, industrial occupations remain prevalent in employing skilled workers, encouraging vocational courses to adapt their courses to satisfy the Brazilian market.

Evaluating Vocational Education and Training for Minority Groups

First, based upon an excel file released by INEP elaborating on 2019 results of vocational training, these charts illustrate enrollment and graduation rates along gender and racial lines, providing a demographic of vocational students.

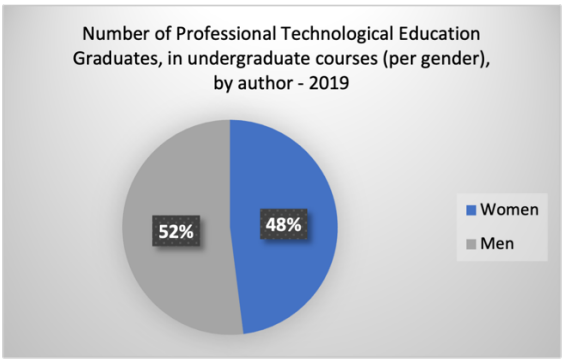
Figure 1. Number of Professional Technological Education Enrollments, in undergraduate courses (per race) - 2019



Data from: INEP, (2021). Sinopse Estatística da Educação Profissional e Tecnológica – 2019. Brasília Disponível em: https://download.inep.gov.br/publicacoes/institucionais/estatisticas .

According to the INEP 2019 data, white students (42,7%) are six times more present in VET enrollments than black students (7%), and account for 31,6% more enrollments compared to mixed students, demonstrating significant and continuous disparity along racial lines. Though vocational training aims at targeting disadvantaged groups, this data suggests that white students comprise nearly half of enrolled students and are the main receivers of this educational initiative, largely benefitting male students (52%) as shown in Figure 1.1.

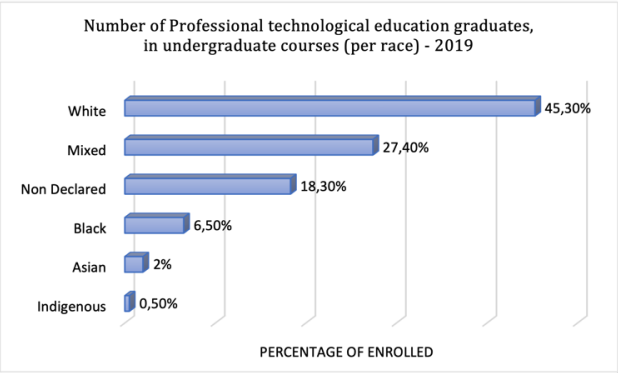
Figure 1.1. Number of professional technological education enrollments, in undergraduate courses (per gender) -2019



Data from: INEP, (2021). Sinopse Estatística da Educação Profissional e Tecnológica – 2019. Brasília Disponível

Furthermore, due to the disproportionate number of white students enrolled in VET, it is predicted to find a higher graduation rate for this group (Figure 1.2.) Nevertheless, figure 1.2 outlines the gradually unequal completion rates for minority groups, tailored according to their declared race. Indeed, white students (45,3%) are 1.65 times more likely to graduate than mixed race students (27,4%) and nearly 7 times more likely than black students (6,5%), offering dubious prospects in VET's inclusivity objectives.

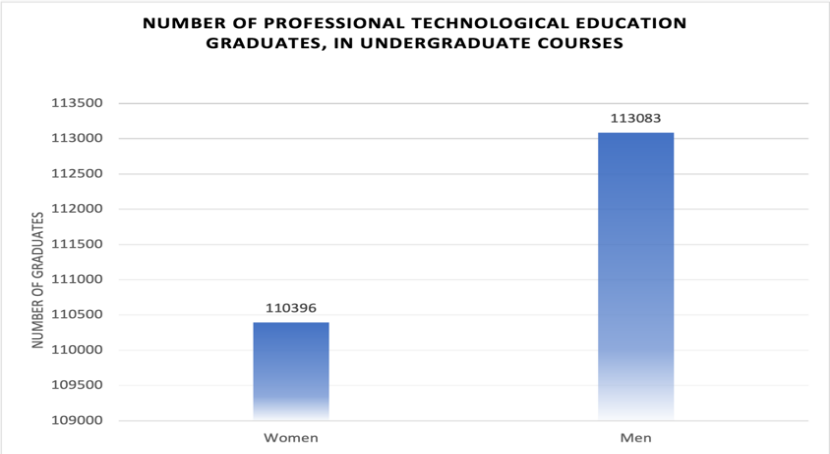
Figure 1.2. Number of Professional Technological Education Graduates, in Undergraduate Courses (per race) - 2019



Data from: INEP, (2021). Sinopse Estatística da Educação Profissional e Tecnológica – 2019. Brasília Disponível em: https://download.inep.gov.br/publicacoes/institucionais/estatisticas .

Similarly to enrollment rates, 2019 statistics show that men are 1,02 times more likely to graduate compared to their female counterparts as seen in Figure 1.3. Jointly with Brown & Lauder's examination of specialists and general education's role in reproducing one's position in "the system of social stratification" (1992, p.6), these figures outline unequal entry and outcomes of VET, reflecting segmented labor theory's expectations. Indeed, regardless of the form of educational programs, Brazilian vocational education appears to remain as a "screening device" of traits or characteristics, possibly suggesting the existence of a dual labor market (Cain, 1976, p. 1219; Brown & Lauder, 1992).

Figure 1.3. Number of Professional Technological Education Graduates, in undergraduate courses (per gender), by author - 2019

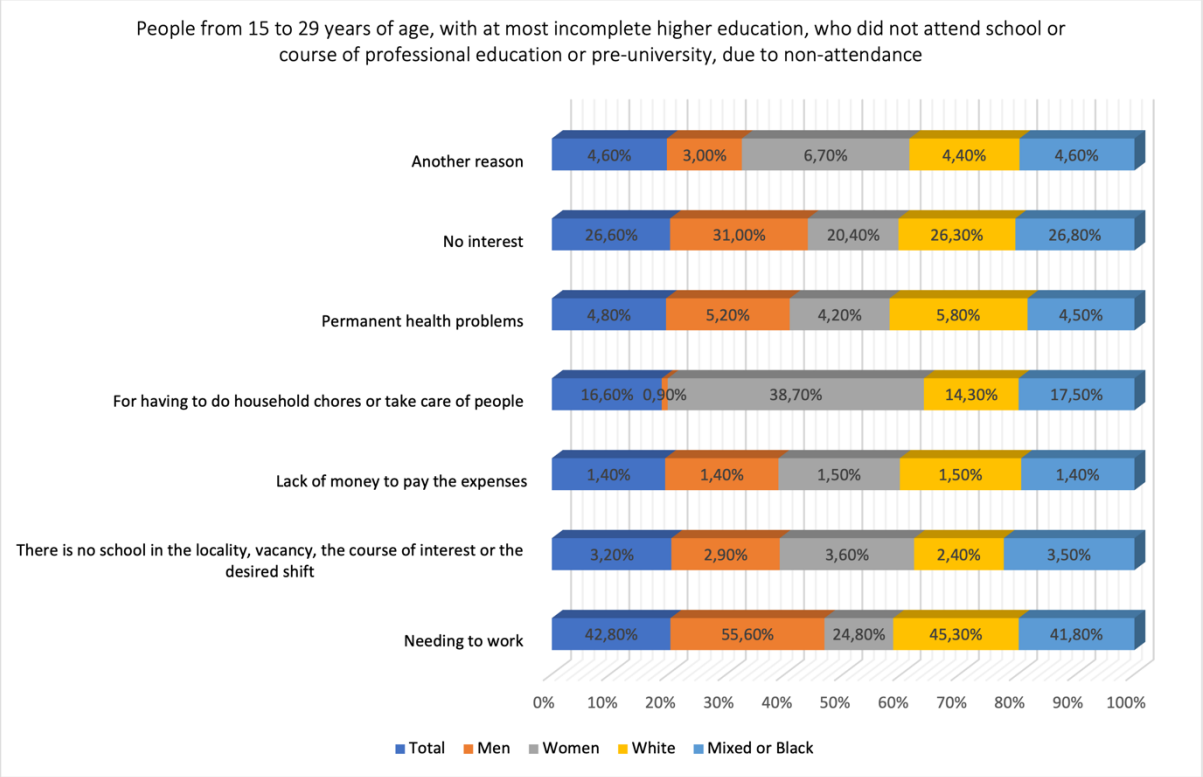


Data from: INEP, (2021). Sinopse Estatística da Educação Profissional e Tecnológica – 2019. Brasília Disponível em: https://download.inep.gov.br/publicacoes/institucionais/estatisticas .

Though racial inequalities seem to prevail over gender ones, PNAD's 2019 report offers explanatory statistics on the various reasons for students' lack of attendance. Though the PNAD's (Instituto Brasileiro de Geografia e Estatística, 2020) report includes a graph portraying students with incomplete higher education or pre-university, the data includes those who did not attend a vocational school or course for individuals from 15 to 29 years old. Figure 1.4 suggests significant gender-based expectations leading to non-attendance for women, where 38,7% of female students explain the lack of attendance due to household obligations or having to take care of people, compared to 0,9% for men. Additionally, mixed, and black individuals are the second largest group (17,5%) in that

category, illustrating how disadvantaged groups face the most obstacles in accessing schools or courses.

Figure 1.4: People between 15 and 29 years of age, with a maximum of incomplete higher education, who did not attend school or a course of vocational education or pre-college education, for reasons of non-attendance - 2019



Data from: Instituto Brasileiro de Geografia e Estatística. (2020). Pesquisa Nacional por Amostra de Domicílios Contínua : educação : 2019. In *Instituto Brasileiro De Geografia E Estatística* (ISBN9786587201092).https://biblioteca.ibge.gov.br/visualizacao/livros/liv101736_informativo.pdf

Similarly to Kupfer's (2012) examination of the importance of gender roles and familial insecurity in limiting or increasing vocational success, this chart demonstrates a higher presence of women (38,7%) performing household chores resulting in being the first reason for limiting their educational attainment with black and mixed people being the second largest group. According to PNAD's 2017 and 2018 reports, this gender-based pattern has steadily increased, where 23,3% of women fulfil household occupations in 2017 and 24,2% in 2018, while men account for less than 1% (IGBE, 2019). Women in 2017 (12%) and 2018 (13%) comprise the highest group facing hardship in financing their educational expenses compared to their male counterparts (9%) (IGBE, 2019). Women ought to have better access to education considering their financially

disadvantaged position, though vocational training does not appear to address it but merely sustains their current future professional limitations.

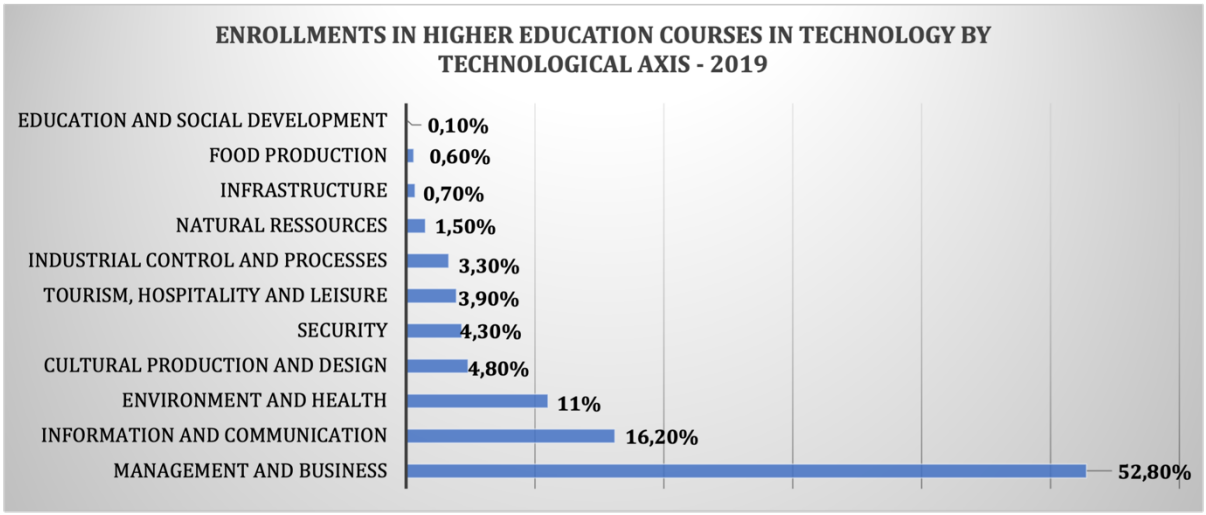
On the other hand, men held the highest rate of needing to work (55,6%) in 2019 as their first reason for low educational attainment, observing a pattern between gender roles' expectations and educational performance. In addition, the lack of access to courses of interest and schools affects women and colored people the most, demonstrating a similar logic to Bauder's (2001) analysis of a segmented labor market where social closure, the control of particular ethnic, gender or class-based groups over others, emerges in this data. Though INEP's statistical results of VET outcomes in 2019 portray relatively low gender-based disparities but significant gaps between white and colored people in enrolling in VET programs, PNAD's surveys shed light on why certain groups lack educational attainment and their faced obstacles. Another relevant aspect of vocational training is students' choice of course and field of interest. It allows us to examine if a proper alignment exists between labor market needs and the area of educational interest, as seen in the figure below.

Figure 2: Number of Enrollments in Professional Qualification Courses, according to technological axes – 2019

Data from: INEP, (2021). Sinopse Estatística da Educação Profissional e Tecnológica – 2019. Brasília Disponível em: https://download.inep.gov.br/publicacoes/institucionais/esta tisticas .

As shown in Figure 2, the top three fields of study chosen by students are business and management (33,3%), followed by industrial processes and control (19,3%) and industrial Production (9,4%). Based on the expected growing sectors in metalworking, transportation, and logistics as for the tourism and agri-food industry, it appears that existing courses such as tourism, hospitality and leisure or food production would better match 2019's labor market predictions (Portal Industrial, n.d; Vargas Zúñiga, 2015, p.35). However, identifying Industrial Processes and Control as the second largest field of interest projects positive alignment with increasing construction, logistical or metalworking professions. Moreover, Figure 2.1 portrays 2019 data collected from SETEC and the Ministry of Education published by INEP (2021), shedding light on the prevalence of enrolled courses by technological Axis such as Management and Business (52,8%) followed by Information and Communication (16,2%) and lastly Environment and Health. There is a misalignment between the growing agri-food industry and significantly low enrollment rates in the Food Production axis (2,4%), as seen in Figure 2. Similarly to Berntson et al. (2006, p.228), segmented labor market theory recognizes the lack of intersectional mobility and "institutional barriers", limiting workers to shift from physically demanding jobs to physiological ones, trapping VET graduates in their educational and professional field, unlike the more general aspects of higher education. Overall, management and business remain the most popular fields of interest throughout this analysis. Growing enrollments in Environmental studies depict a gap between students' interest and their expected professional position within the labor market's needs.

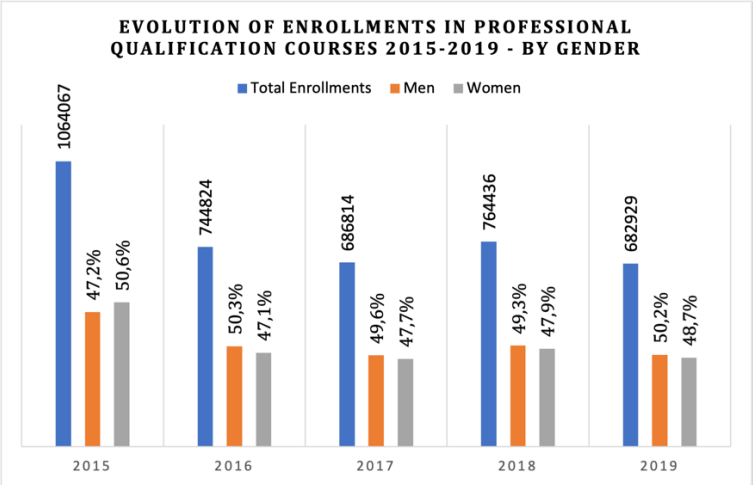
Figure 2.1. Enrollment in Higher Technology Courses by Technological Axis- 2019



Data from: INEP. (2021a). Anuário Estatístico da Educação Profissional e Tecnológica. https://download.inep.gov.br/publicacoes/institucionais/estatisticas_e_indicadores/anuario_estatistico_educacao_profissional_tecnologica_2019.pdf

Though this chart provides valuable information, the distribution of courses per gender offers the possibility to draw patterns between course type and prospective professions along gender lines. Indeed, the top three courses women are the most present are Environment and Health (74,5%), followed by Food Production (68,5%) and lastly, Education and Social Development (63,1%). However, men comprise 85,7% of Information and Communication courses, followed by 85,6% in Industrial control and processes and lastly, Security courses representing 71% of male students (INEP, 2021a, p.33). Overall, women enroll in educational or service-orientated fields of study while men enroll towards physically demanding professions signaling a continuity of gender expectations in their educational fields of interest and future professional occupations. More generally, Figure 2.2 portrays a progressive decrease in vocational training enrollments, representing a 35,8% decrease from 2015 to 2019.

Figure 2.2. Evolution of Enrollments in Professional Qualification courses 2015-2019 - by Gender



Data from: INEP. (2021a). Anuário Estatístico da Educação Profissional e Tecnológica. https://download.inep.gov.br/publicacoes/institucionais/estatisticas_e_indicadores/anuario_estatistico_educacao_profissional_tecnologica_2019.pdf

A noticeable trend in all databases is the relatively low gender gap within enrollment and graduation rates, without surpassing a 3% difference. Nevertheless, based on women's educational difficulties and vocational training's objective of targeting disadvantaged groups, it would be expected to perceive higher female enrollment rates. In this sense, the relationship between gender and vocational training is not linear nor homogenous, as gender gaps in enrollments are low. However, the reasons explaining the impossibility

of attending school underline the disproportionate distribution of household chores or providing financial support to their families. Furthermore, though the analysis does not extensively focus on vocational training providers, it is noteworthy to illustrate that the two main parties responsible for providing vocational education (SENAI and SENAC) are, in fact, the two predominant providers. INEP's 2021 Anuário depicts how SENAI was the predominate supplier between 2015 and 2019 with an average of 49,26% while SENAC accounts on average for 33,26%, compared to low federal or private involvement portraying seemingly appropriate educational coordination and provision (INEP, 2021a, p.30).

To conclude, the general outlook of VET enrollments and graduation rates portrays significant entry barriers, primarily for women and people of color, as demonstrated by PNAD's 2019 report. Enrollment rates are consistently higher for white and male students while facing fewer obstacles in accessing or completing vocational schools and programs (INEP, 2021). The consistent presence of disparities according to students' skin color or the influence of gender roles reflects Brown & Lauder's (1992, p.5) interpretation of education, arguing that "winners and losers" are inevitable as students are merely seen as forms of production where stratification reflects one's social position, reproduced throughout their educational journey. From a policy standpoint, though vocational training provides some skills and educational attainment, it fails to address Brazil's stratified and racialized access to education adequately. The gender-based obstacles indicate the need for Brazilian education to consider women's financial hardships and potentially offer economic support or household aid to alleviate women's risk in school dropout. Indeed, pursuing a human capitalistic approach to education will consistently fail to consider some students as part of advantaged or disadvantaged societal groups by not only unequally providing education and job prospects but also by sustaining Brazil's longlisting racial inequalities. Indeed, this analysis reaches similar conclusions to the academic debate in challenging human capital theory, where Leontaridi describes difficulties in accessioning the labor market where racial or social characteristics define the segmentation and increasing obstacles for specific groups (1998, p.73).

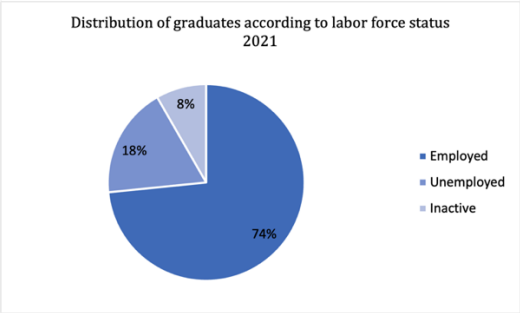
Thus far, though human capital theory stipulates that increased education results in better productivity and a growing economy, the premise of vocational attainment and

outcomes is unequally distributed. Vocational training's objective in supplying labor market's needs with growing construction and physically demanding jobs reflects the capitalist logic of investing in education "in order to fashion their 'products' to the demands of a modern industrial society" (Brown & Lauder, 1992, p.5). Because vocational training aims at supplying the labor market with the necessary skilled workforce, it raises concerns regarding the transferability of those skills and the long-term worth of their education, which is narrowly defined for a specific sector. As such, VET instrumentalizes human capital as 'mechanical objects' suitable for economic growth (Maringe, 2015, p.3). This first analysis challenges human capital theory's individualistic approach to educational and economic success as a gender and racial pattern of exclusion was identified, highlighting the importance of one's societal position (Tan, 2014). The following section will add empirical value and draw theoretical conclusions in identifying a segmented labor market due to the observed educational limits and failures of vocational training.

The Impact of Vocational Training on Labor Market Insertion

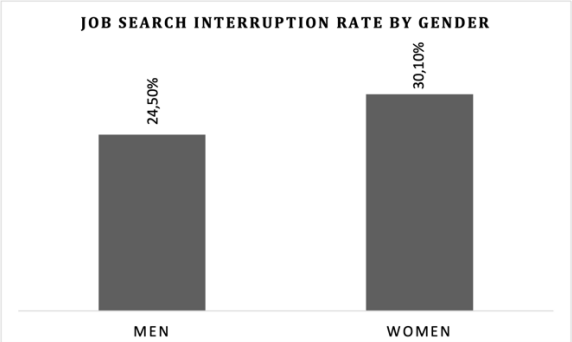
This section aims to identify labor market outcomes for vocational training graduates by incorporating information gathered from the previous section to identify any VET and job misalignment, employment, and unemployment rates for identifying leading job sectors and occupations. The data is collected from 2017 to 2021 to maintain a logical chronological order while also including the most available data. First, SENAC's (2022) vocational training evaluation offers an outlook regarding the transition between school and the labor market, including employment rates, labor force status, combined with Moraes et al.'s (2020) data collection illustrating the perceived influence of VET in job attainment, job performance and salary increase. Indeed, Figure 3 demonstrates graduates' employability and Figure 3.1 indicates the percentage of men and women interrupting their insertion in the labor market.

Figure 3: Distribution of Graduates According to Labor Force Status 2021



Data from: Macena, L. G. (2022). Síntese da Pesquisa Nacional de Avaliação dos Egressos do Senac - PNAES 2021. In *Serviço Nacional De Aprendizagem Comercial*. https://www.dn.senac.br/wpcontent/uploads/2017/03/PNAES_Egressos_2021_DIGITAL.pdf

Figure 3.1 Job Search Interruption Rate by Gender



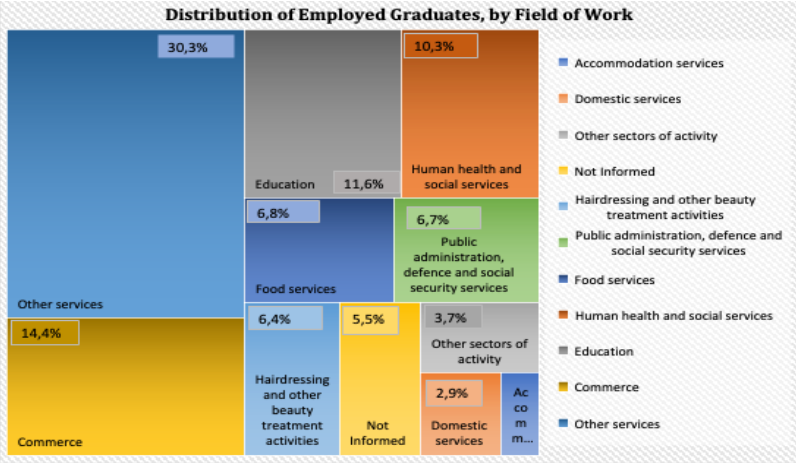
Data from : Moraes, G., De Albuquerque, A. E., Dos Santos, R., & Da Silva, S. (2020). *Avaliação da Educação Profissional e Tecnológica: um campo em construção*. Ministério da Educação.

Though vocational trainee's labor force status indicates that most graduates (74%) are employed in the labor market, the impossibility of those continuing their insertion in the labor market affects women more than men, reflecting similar discrepancies addressed previously. More generally, from all the individuals facing job interruption, the primary reason for this interruption includes 42.4% of individuals expressing limited job opportunities, and 13,2% of individuals described the need to "prioritize household chores or child or relative care, or pregnancy" (Moraes et al., 2020, p.402). Not only does the data portray consistent gender-based disadvantages from their education to job search due to household and family obligations, but the lack of professional opportunities questions the viability and purpose of vocational training in adequately matching education to labor market necessities. In coherence with Waddoups & Assane's (1993) conceptualization of a segmented labor market, they emphasized gender-based inegalitarian access to employment, influenced by the educational system and students' inability to enter the workforce. Moreover, Thurow's (1972, p.168) argumentation of professional training's objective in bettering individuals' skills only serves to "verify his 'trainability' and confer upon him a certain status" is reflected in the following statistics (Thurow, 1972, p.168 cited in Cain, 1976, p. 1245). Indeed, 23.6% of graduates not working indicated they lack the necessary professional experience (Moraes et al., 2020, p.402).

Furthermore, according to PNAD's and IGBE's database (Moraes et al., 2020), only 9.7% of workers from the agriculture, forestry, hunting and fishing industries acquired

vocational training, followed by 17,8% of skilled workers, craftsmen of construction, mechanical arts workers. Though there has been a 9,5% employment increase from 2017 to 2019 in the agri-food industry, enrollment rates in that field (5,7% in Food Production) do not coincide with the industry's needs. However, there is a relative alignment between the middle-level technicians, which 32,5% declared having had a vocational training course, and the percentage of students enrolled in the field of Industrial Processes and Control, accounting for 19,30% of enrollments being the second most enrolled course (INEP, 2021; Moraes et al., 2020). Indeed, there are positive results in analyzing the adequate transition and alignment with job prospects, as Figure 3.2 illustrates the field where graduates work, demonstrating a similar popularity of enrollment in professional courses.

Figure 3.2. Distribution of Employed Graduates, by Field of Work



Data from: Macena, L. G. (2022). Síntese da Pesquisa Nacional de Avaliação dos Egressos do Senac - PNAES 2021. In *Serviço Nacional De Aprendizagem Comercial*. https://www.dn.senac.br/wpcontent/uploads/2017/03/PNAES_Egressos_2021_DIGITAL.pdf

Indeed, the five most popular fields of work after "Other Services" are Commerce (14,4%), Education (11,6%), Human Health and social services (10,3%), Food Services (6,8%) and Public Administration, defense, and social security services (6,7%). Three out of these five fields match the five most enrolled vocational courses such as Business and Management (33,3%), Education and Social Development (7,8%) and Environment and Health (8,5%). The higher employment rates in these categories suggest promising employment opportunities, portraying a gradual alignment between students' choice of educational interest and future job prospects.

In a survey conducted by Moraes et al. (2020, p. 398), they evaluated that 58,6% of those finding work after graduation consider VET influencing these results, with 41,9% perceiving an increased wage, 18,5% obtaining promotion and 80% improving their

work performance. Therefore, transitioning from vocational training to the labor market presents conflicting interpretations of a human capital theory and a segmented labor market. Indeed, from class enrollment to job participation, stratification along gender and racial lines persists, underlining the ongoing influence of gender roles in society and limited access to VET, mainly for black individuals. According to Bourdieu, "family cultural capital and social capital network" hold a significant role in defining one's status and educational trajectory, explaining the limits of VET (Marginson, 2019, p.290). On the other hand, human capital theory supports the data in perceiving income growth (41,9%) and most individuals (80%) stating that their work skills have improved due to training, reflecting the theory's argumentation in investing in education to obtain better economic returns and labor productivity (Woltermann, 2004; Gillies, 2012).

Leontaridi (1998) identified a segmented labor market theory as having institutional barriers disadvantaging minority groups from educational attainment during the labor process and entrance into the labor market. Indeed, the first section of this analysis demonstrated how on average, there is a 15,7% enrollment gap between white and mixed raced students and a 37,25% difference between black students. Though black and mixed people comprise 49,7% of the Brazilian demographic, white students' enrollment surpasses those of indigenous, black, Asian, and mixed-race individuals combined. Carnoy's (1980, p.112) coining of the term 'the reserve army of the unemployed' challenges the idea of granting more education to raise employment as 'it is the nature of the labor market' in determining which group is most prone to face unemployment, often affecting women and colored people. As such, education can undoubtedly provide skills and competencies; however, it fails to restructure the institutional inequalities of one's economy and society as it "can achieve only a small percentage of the results claimed for education and training by human capital theory" (Carnoy, 1980, p.112).

To conclude, though vocational training aimed at addressing educational inequalities in Brazilian society while serving an economic purpose in providing skills and adequate labor in demanding sectors, the first part of this analysis demonstrates apparent disparities from enrollment to graduation rates while describing the obstacles faced explaining the lack of attendance. A segmented labor theory interpretation of Brazil's vocational training outcomes contradicts a human capital rhetoric predicting

homogenous and linear results by investing in education according to labor market needs. Vocational training's purpose and logic can be criticized as limiting individuals from transferring their skills and aptitudes to other professions and limiting their mobility, questioning the legitimacy of VET's social objectives. Indeed, Bauder's elaboration of the "social nature of labor" reconciles the influence of educational discrimination and individuals as "social actors" in the labor market and its impact on shaping employment possibilities (2001, p.39). Women's entrapment in the household, impacting their educational attainment, demonstrates segmented labor market theory's conceptualization of "local labor markets as home-to-work links", whereby spatial entrapment concerns women and minorities (Bauder, 2001, p.40).

Moreover, the author argues that the supply side, namely vocational education, fails to understand how supply and demand interact within "wider social, political and economic contexts that reproduce inequality", questioning the long-term viability of vocational training (Bauder, 2001, p.47). This analysis and theoretical interpretation question the suitability of Brazil's educational and political initiatives as it fails to consider minority groups' economic situation and social hardship. Indeed, future political initiatives should address how the educational system perpetuates social and professional inequalities, adopting a holistic and institutional outlook rather than a human capitalist and individualistic approach. The second half of this analysis presents some perceived benefits of vocational training for increasing workers' salaries and improving their work skills. However, educational benefits are not homogenous, where job search and employment consistently benefit men more than women with household or pregnancy-related circumstances that limit their ability to enter and evolve within the labor market. The demonstrated disparities adequately reflect segmented labor market theory's (Carnoy,1994, p112) argument for having a "reserve army of the unemployed" affecting specific group populations, namely, women. Disregarding VET's objective of bettering individuals' social situations, it fails to provide consistent economic and job opportunities with a lacking coherence between courses and demanding labor sectors, questioning the foundation of vocational training's economic and social mission.

Though this research presents data-related limitations due to the difficulty in retrieving detailed information regarding the relationship between vocational training and

students' transition to the labor market, the presented analysis offers a preliminary understanding of the current obstacles and limitations that the Brazilian government should address. Re-evaluating the purpose of vocational training in focusing on minority groups' inclusion and the transferability of skills should promise better educational and professional outcomes rather than building an educational system based on Brazil's ever-changing labor market needs. Though the analysis presents some similarities with human capital theory in increasing work efficiency and salaries, segmented labor market theory prevails through the educational and labor market analysis depicting unequal access to VET, unequally distributed reasons for dis-enrolling, disproportionally affecting women and people of color, and an apparent disconnect between students' interests and labor market needs. Despite the study's limitations, there are sufficient observed inconsistencies, disparities, and gaps to infer that human capital theory holds convincing arguments or policy recommendations. This study contributes to educational policymaking from a global south perspective which drastically differs from the Western experience as demonstrated in the literature review, pushing policymakers to revisit the viability of transferring Western base action onto the global south.

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