

## ARTICLES

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# TECHNOLOGICAL CHANGES, WORK, AND INEQUALITIES IN LATIN AMERICA: RETHINKING POST-PANDEMIC SOCIAL PROTECTION OPTIONS

*Mudanças tecnológicas, trabalho e desigualdades na América Latina: Repensar as alternativas de proteção social no pós-pandemia*

*Cambios tecnológicos, trabajo y desigualdades en América Latina: Repensar alternativas de protección social en la pospandemia*

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### ABSTRACT

This article analyzes the effects of the COVID-19 pandemic on the heterogeneous and unequal labor markets in Latin America. It emphasizes the need for countries in the region to rethink their social protection options in the face of problems related to the growth of informality and work precariousness. In addition to demonstrating the very unequal incidence of these effects across Latin American countries, the article highlights the main risks they face in the current scenario of intense transformations in the productive system and employment relations, partly precipitated by the advent of the pandemic. Finally, the importance of intersectoral and coordinated social protection measures to face these problems is discussed, such as strengthening state capacities to implement passive and active employment policies, which are deficient in the region, and creating effective public systems for professional training.

**Keywords:** technological changes, inequalities, professional qualification, pandemic, Latin America.

### RESUMO

*Este artigo analisa os efeitos da crise sanitária gerada pela pandemia de Covid-19 nos mercados de trabalho heterogêneos e desiguais da América Latina e enfatiza a necessidade de os países da região repensarem suas alternativas de proteção social diante dos problemas relacionados ao crescimento da informalidade e da precarização do trabalho. Além de demonstrar a incidência bastante desigual desses efeitos nos países da região, o artigo destaca os principais riscos que os países latino-americanos enfrentam no atual cenário de intensas transformações no sistema produtivo e nas relações de emprego, em parte precipitadas pelo advento da pandemia. Por fim, discute-se a importância de algumas medidas intersetoriais e coordenadas de proteção social para enfrentar esses problemas, tais como o fortalecimento das capacidades estatais de implementação de políticas passivas e ativas de emprego, bastante deficientes na região, e a criação de efetivos sistemas públicos de qualificação profissional.*

**Palavras-chave:** mudanças tecnológicas, desigualdades, qualificação profissional, pandemia, América Latina.

### RESUMEN

*Este artículo analiza los efectos de la crisis sanitaria generada por la pandemia de COVID-19 en los heterogéneos y desiguales mercados laborales de América Latina y enfatiza la necesidad de que los países de la región repiensen sus alternativas de protección social ante los problemas relacionados con el crecimiento de la informalidad y precariedad del trabajo. Además de demostrar la incidencia muy desigual de estos efectos en los países de la región, el artículo destaca los principales riesgos que enfrentan los países latinoamericanos en el escenario actual de intensas transformaciones en el sistema productivo y las relaciones laborales, en parte precipitadas por el advenimiento de la pandemia. Finalmente, se discute la importancia de algunas medidas intersectoriales y coordinadas de protección social para enfrentar estos problemas, como el fortalecimiento de las capacidades estatales para implementar políticas pasivas y activas de empleo, que son bastante deficientes en la región, y la creación de sistemas públicos de cualificación profesional eficaces.*

**Palabras clave:** cambios tecnológicos, desigualdades, cualificación profesional, pandemia, América Latina.

## INTRODUCTION

The tragic effects of the COVID-19 pandemic were not homogeneous across different regions of the planet. This has left countries at a crossroads regarding political choices to face the health crisis and rethink development options. The pandemic forced countries to recognize the unprecedented nature of the changes, demonstrated the weaknesses of the traditional instruments for dealing with crises, and encouraged governments to rethink their employment and social protection policies.

The health crisis has exacerbated inequalities in the world of work, particularly concerning access to resources provided by new digital technologies. The widespread use of digital media, essential for maintaining productive activities and disseminating knowledge, exposed the enormous distances between those included and excluded from the digital economy and revealed the weaknesses of social protection systems in responding to a crisis of unprecedented proportions.

In some regions of the world, such as Latin America and the Caribbean, these disparities have become even more pronounced due to structural inequalities, precarious labor markets, and deficiencies in social protection systems. Although the World Health Organization (WHO) declared the end of the COVID-19 pandemic on May 5, 2023, some countries continue to face structural challenges exacerbated by the health emergency in a context of slow economic growth, expansion of informality in the labor market, and increased inequalities (Comissão Econômica para a América Latina e o Caribe [CEPAL], 2023).

This article discusses the effects of the health crisis on heterogeneous and unequal labor markets in Latin America. It emphasizes the need for countries in the region to rethink their social protection alternatives in the face of problems generated by technological changes. In addition to demonstrating the unequal incidence of these effects in the region, the article highlights the main risks Latin American countries face in the current post-pandemic scenario of intense transformations in the production system and employment relations.

This article is divided into five sections, including this introduction. The next section discusses the implications of technological changes in labor markets and highlights the deregulation of employment relations, remuneration differentials, and the returns provided by extremely unequal educational investments as the main mechanisms responsible for increased inequality in different societies. The third section analyzes the impacts of the COVID-19 pandemic on Latin American labor markets, emphasizing how old and new inequalities have combined in the region to intensify unemployment and informality, especially with the advent of precarious employment modalities promoted in the scope of digital work platforms. The fourth section discusses the fragility of public employment policies in Latin America as the main obstacle to expanding protected employment post-pandemic and points out some social protection alternatives that, if integrated, could boost this expansion, especially with the strengthening of capabilities for implementing professional qualification policies. The final section consists of the conclusion.

## TECHNOLOGICAL CHANGES, WORK, AND INEQUALITIES

During the COVID-19 pandemic, two global and opposing trends emerged in the transformation of capitalism (Boyer, 2020). The first concerns the deepening of deregulated capitalism – “platform capitalism” – centered on labor exploitation and extensive data extraction and commercialization (Zuboff, 2019). This trend demonstrated its full potential by expanding e-commerce activities through the massive use of algorithms driven by artificial intelligence.

The pandemic also revealed the exhaustion of the neoliberal prescription for dealing with crises and reinforced a tendency toward market regulation and state activism (Boyer, 2020; Gerbaudo, 2023). According to Robert Boyer (2020), countries with more coordinated models of capitalism, such as China, “came out of the crisis ideologically strengthened” (p. 8) by their public bureaucracies’ strategic mobilization of resources to confront the pandemic, as seen in the global race to produce medical supplies and vaccines.

Related to these trends, the pandemic’s adverse effects on educational systems, particularly in the world of work, made the disadvantages arising from new technologies more prominent, which many authors have pointed out as worsening factors of inequalities. Globalization and technological changes have affected different groups of workers very unequally (Iversen & Soskice, 2001; Thewissen & Rueda, 2017). The risk of having a low-paid and obsolete job has grown enormously due to the intense process of deindustrialization and automation of work. In digital capitalism at the beginning of the 21st century, work relationships have become increasingly less routine, more unequal, and less remunerated compared to the classic employment pattern (Goos et al., 2014). This phenomenon intensifies the polarization of employment and income in several countries (Autor & Dorn, 2013; Lanzara, 2023).

Furthermore, unlike the “material economy,” forms of employment in the digital space have blurred the limits set by labor regulation and pose serious challenges to the continuity of regulated and protected work. Among the new jobs that have emerged with technological advances are those intermediated by digital platforms (Casilli & Posada, 2019). The emergence of these new types of employment implied a paradigm shift in labor relations not included in the traditional frameworks of labor regulation, causing a legal void in terms of workers’ protection (Dukes & Streeck, 2023).

It is necessary to relativize the phenomenon of mass unemployment generated by technological transformations as a “one-way street.” Much of the trend toward labor substitution in different economies does not arise from the inevitability of automation processes but from companies’ strategies for reducing labor costs, which spare no effort to outsource and allow digital work and consequentially precarious work (Ford, 2015; Lanzara, 2023).

The relationship between technological change and employment is only an effect of the broader process of implementing innovations in the production system. The speed at which a series of jobs becomes obsolete is unprecedented compared to previous periods of “creative destruction” (Schumpeter, 1943; 2017). As Martin Ford (2015) highlights, unemployment has always characterized transition periods in capitalist economies generated by productive

innovations. After these transition periods, several political economies witnessed a virtuous circle between increased productivity, wage growth, and expansion of household consumption (Ford, 2015). Today, the situation is quite different: there is increased productivity driven by technological innovations but decreased salaries and consumption of families (increasingly in debt) and employment itself (Lanzara, 2023).

Thus, this relationship must be understood within the framework of recent transformations in capitalism that enabled the advent of a more asymmetric and less regulated employment structure (Dukes & Streeck, 2023). Although operating in more competitive and unequal contexts, the relationship between technological change and employment continues to be mediated by productive and welfare regimes that maintain strategic complementarity, especially in more coordinated political economies (Amable, 2016).

Therefore, without minimizing the impacts of technological changes, it is first necessary to recognize the mechanisms responsible for the growth of inequities related to employment and remuneration differentials caused by extremely unequal educational investments in different societies. Perverse effects often go unmentioned in catastrophist (or excessively benevolent) analyses of technological changes' impacts on labor markets, obscuring the real problems that affect employment relations, such as low wage growth and great social inequality.

Branko Milanovic (2020) states that the current global growth in inequalities has been exhausting the values of liberal capitalism by sanctioning an extremely meritocratic, cynical, and unfair system of transmitting advantages. The costs of access to new technologies and services that in the past, as a result of the expansion of national welfare policies, provided channels of upward mobility for disadvantaged groups have increased – public services, such as education, health, professional qualifications, and security – leading to reduced opportunities (Milanovic, 2020).

The occupational transitions generated by technological changes cannot be dissociated from the challenges different societies face concerning access to qualifications and professional training. As Thomas Piketty (2020) highlights, the current scenario of growing inequalities requires a combination of government initiatives to modify the primary distribution of income, promoting “deep changes to the legal, fiscal, and educational systems” (p. 466). Given recent technological changes, the production system requires increasingly greater qualifications. If the supply of these qualifications is unequally distributed, inequalities in jobs and wages between groups will increase, “regardless of the excellence of the legal or fiscal system in force” (Piketty, 2020, p. 471). Concerning the legal system, and contrary to prevailing arguments that treat labor regulation as a “production cost,” the contribution of labor law and the rules concerning the determination of wages to the reduction of inequalities is undeniable. It is also worth highlighting the pressure exerted by collective negotiations and unions to make wage differences less arbitrary and unequal (Piketty, 2020).

However, the insistence of some governments on austerity policies and employment flexibility measures has contributed to worsening wage inequalities and precarious work. The most serious issue is that, without public employment and professional qualification programs,

the shortage of qualified employment can become a permanent factor in the stagnation of national economies, limiting their horizons for innovation and growth (Lanzara, 2023).

Therefore, the problem is posed not only for developed countries faced with the emergence of new technologies, which saw their public investments in education stagnate and their more stable employment relations succumb to a set of competitive pressures. The problem also affects countries in Latin America, which have profound educational deficiencies and informal, heterogeneous, and labor market turnover. Such countries are obviously less equipped to deal with the challenges posed by new digital technologies and find themselves more threatened by the growing trend of inequalities. The next section discusses these challenges in the Latin American context in light of the problems highlighted by the COVID-19 pandemic.

## **The effects of the pandemic on labor markets in Latin America: the combination of new and old inequalities**

Latin America suffered the most repercussions due to the COVID-19 pandemic (Comisión Económica para América Latina y el Caribe [CEPAL], 2022). The negative implications of the health crisis in the region are obviously not accidental. Latin America continues to be the region with the greatest inequality on the planet. According to a report by the United Nations Development Program (UNDP), the richest 10% of the continent concentrate a greater share of income than any other region (37%), while the poorest 40% receive 13% (United Nations Development Program [UNDP], 2020).

The severe structural problems affecting Latin American countries were aggravated due to the adverse consequences generated by the pandemic. In 2021, at the height of the pandemic, the number of people in extreme poverty corresponded to 13.8% of the total population of Latin America and people in poverty, 32.1%, numbers much higher than those recorded before the health crisis (CEPAL, 2022). The crisis' adverse effects impacted the region's poorly structured and heterogeneous labor market, leading to an immediate increase in unemployment rates, 10.3% in 2020, and a profound drop in participation in the labor market, with consequent growth of poverty and inequality (CEPAL, 2022).

Although there is an improvement in certain labor market indicators between 2020 and 2022, this reflects a cyclical and rather slow recovery in economic growth or rebound effect and an incomplete and uneven labor market recovery (CEPAL, 2023). According to a report by Cepal/Organización Internacional del Trabajo (OIT) (2023), the labor market participation rate is estimated to remain slightly below pre-pandemic levels in the coming years. Likewise, projections point to a deterioration in the quality of jobs generated in the post-pandemic context of low growth. This will mean that workers will be more vulnerable, have lower levels of social protection, and be located in less productive sectors due to the perverse combination of the effects of the pandemic and the region's structural inequalities (CEPAL, 2023; OIT, 2023).

The loss of jobs generated by the pandemic affected the most vulnerable groups to a greater extent: informal workers, young people, people with a lower level of education, women, people

of African descent, indigenous peoples, and immigrants. Among these groups, women suffered a greater drop in employment. This reduction was more accentuated due to women's greater insertion in the sectors most affected by the health crisis and characterized by insecure and precarious jobs (domestic employment, restaurants, hotels, and commerce) (CEPAL, 2023; OIT, 2023).

The challenges of inserting young people in the labor market also became more prominent during the pandemic, when people aged 15 to 29 suffered greater job losses than the adult population. Furthermore, young people are overrepresented in Latin America's informal worker population – the informality rate for people aged 15 to 29 is 53.4%, 12 percentage points higher than that of people aged 30 to 64 – and, as a consequence, suffered greater income loss due to the interruption of work and the lack of protection (CEPAL, 2023).

Available data indicate that job losses resulting from the pandemic were greater for people with lower levels of formal education than those with higher education. The measures adopted by different countries to reduce working hours and avoid mass layoffs immediately resulted in a sharp reduction in wages. It is also noted that the trend of wage stagnation and wage bill contraction in different countries did not reverse with the end of the health crisis (CEPAL, 2023; OIT, 2023).

The reduction in salaried employment was mainly concentrated in the private sector, particularly in industry and construction. However, in the public sector, there was a slight decrease or a moderate expansion of employment, depending on the country (OIT, 2023). In many countries, there was an increase in employment in the health services sector, which demonstrates the strategic importance of this sector in the face of a renewed social demand for better quality public services in the post-pandemic period, with emphasis on countries with public and universal systems, revealing their potential to absorb qualified jobs (Kerstenetzky, 2023). On the other hand, there was a significant increase in employment in all financial, e-commerce, and service activities, which made strong use of teleworking, particularly provided by digital employment platforms (CEPAL, 2023; OIT, 2023).

The necessary social distancing measures to combat the spread of the pandemic, particularly the closure of schools and professional training centers, greatly affected children and young people. It should also be noted that in Latin America, the development of technological solutions to face the problems caused by the pandemic was conditioned by structural factors. Although most countries in the region have adopted forms of remote or hybrid education, the gap between students in public and private schools has widened substantially, particularly affecting low-income groups, who have limited or no access to new information technologies (CEPAL, 2022).

Thus, the longer these individuals spend outside school, the higher their risk of precarious insertion or exclusion in the job market. Empirical evidence shows that entering the job market during a prolonged recession, such as the one caused by the pandemic, can negatively affect the professional trajectory of young people for a decade or more (Schwandt & Wachter, 2019). Furthermore, faced with the need to generate income for their families, these young people



were pressured to accept any job, generally precarious and informal, including new types of employment without protection within the scope of digital platforms (International Labor Organization [ILO], 2020).

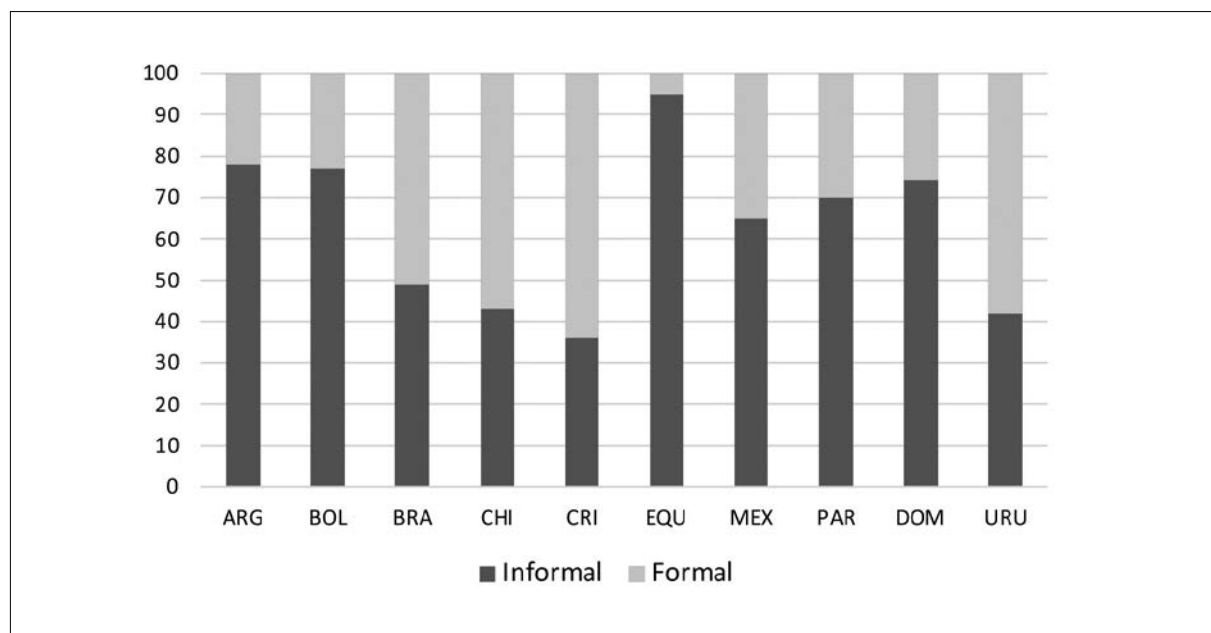
Although these platforms represented an alternative occupation during the health crisis, increasing temporary employability, the expansion of this type of employment intensified in the post-pandemic period, given the trends already highlighted in the growth of digital work and consolidation of so-called platform capitalism (Casilli & Posada, 2019). In this sense, the health crisis has accentuated the pace of productive transformations related to the use of new technologies and digital employment modalities. It is estimated that 3% of employees in the region had these types of jobs in 2019; this proportion increased to 25% during the pandemic and shows little sign of reversal (OIT, 2023).

These trends are very present in some Latin American countries through the recruitment carried out through digital platforms. The pandemic benefited companies organized around these platforms, such as Uber, iFood, and Amazon, which hire workers as freelancers, encouraging “collaborative” forms of work but exempting themselves from the obligation to pay minimum wages, taxes, and social benefits. These companies started to operate in different Latin American countries, considerably expanding their activities during the pandemic, and are transforming into true unregulated virtual factories.

In the current phase of job reactivation, Latin American workers face the challenges of reintegration into the job market during a slow economic recovery and low generation of qualified jobs. Therefore, the likelihood of these platforms becoming a new repository of abundant, occasional, and cheap work, especially for young people, is growing (Weller, 2020). Thus, employment on digital platforms represents a risk, especially in the expansion of informal work, which covers practically half of the region’s workers (49% of those employed at the end of 2022), posing serious challenges to protection systems (CEPAL, 2023; OIT, 2023).

Since the resumption of employment and the gradual relaxation of social distancing measures, informal work has represented between 40% and 95% of the net increase in jobs created between the third quarter of 2020 and the second quarter of 2023 (OIT, 2023). These data show that employment recovery in different countries continued to be driven by the growth of informal jobs, as seen in Figure 1.

Figure 1 – Contribution of Formal and Informal Employment to the Recovery of Total Employment – Selected Latin American Countries. III Quarter of 2020–II Quarter of 2023



Source: OIT (2023).

The lack of access to qualified and protected work is already an obstacle to the inclusive growth of Latin American countries. The rapid transformations brought about by new information technologies, enhanced by the pandemic, significantly widened the gaps between insiders and outsiders in the digital economy. This has made it even more difficult for some of the population, especially the most vulnerable groups, to enter the world of work.

In the next section, we highlight some social protection options to face these transformations accelerated during the pandemic, emphasizing the importance of improving passive and active employment policies, which are quite deficient in Latin American countries.

## Challenges for social protection in post-pandemic Latin America: Professional qualification policies

Some national governments' responses to the pandemic required unprecedented levels of collaboration and mobilization of resources between public and private actors. The ideas surrounding the construction of an "entrepreneurial state" (Mazzucato, 2014) and an innovative public bureaucracy, whose policies are dynamic and "mission-oriented," acquired special relevance as a consequence of the health crisis (Kattel, 2022; Mazzucato & Kattel, 2020; Mazzucato et al., 2021).

The pandemic required governments to create and mobilize innovative state capabilities. The range of available options meant that some countries, such as China and South Korea, had



entrepreneurial bureaucracies able to promote quick and consistent responses to the problems generated (Mazzucato & Kattel, 2020). Other countries, such as Vietnam, Mongolia, Senegal, Sri Lanka, and some regions, such as Kerala, in India, without counting on large economic resources, made important coordinated efforts, particularly compared to some initiatives undertaken by larger economies. On the other hand, governments that strictly followed the prescription of fiscal austerity policies had limited options to face the health crisis (Mazzucato et al., 2021).

In the field of social policy, the pandemic demonstrated the importance of non-contributory protection instruments and reignited the discussion about adopting a universal basic income. The pandemic also highlighted the relevance of contributory instruments, especially unemployment insurance, for workers' protection, pointing to the need to expand their coverage, which is scarce in Latin American countries, and to make better use of their resources to face the problem of occupational transitions generated by technological changes (Weller, 2020).

However, the issues resulting from the pandemic in the world of work require Latin American governments to implement more effective productive inclusion policies, emphasizing active professional qualification policies. Although the pace of adoption of new technologies is reduced among Latin American countries due to their marked productive heterogeneity, the inequalities increased by the pandemic have shown that the social protection systems of these countries are poorly equipped to face the risks associated with the phenomenon of occupational transitions (Weller, 2020). In structurally flexible labor markets, characterized by low levels of productivity and labor market turnover, occupational transitions caused by technological changes can generate adverse social consequences, intensifying the trends of precarious work and income polarization, especially in the absence of qualification and vocational training policies.

The main goal of social protection is to guarantee basic living standards and expand access to income, social services, and decent work. Three components of social protection are fundamental to ensuring this objective, namely: 1) non-contributory social policy (traditionally known as social assistance, which can include both universal and focused income transfer measures); 2) contributory social protection, which corresponds to benefits linked to work, such as social security benefits and unemployment insurance, also known as passive income protection instruments; and 3) the regulation of labor markets, which consists of a set of norms and institutions aimed at promoting and protecting employment relationships, focused on active professional qualification policies (Cecchini & Martínez, 2011).

It is important to highlight that these components are not isolated. The post-pandemic context of accelerating technological changes and occupational transitions requires less watertight and more integrated protection initiatives. As highlighted in the previous section, the pandemic forced the introduction of new, generally precarious types of work related to the digital space. It intensified the phenomenon of job heterogeneity in Latin America. Faced with these accelerated transformations, it is urgent to create more dynamic and adaptive employment policies for countries in the region (Isgut & Weller, 2016; Novick, 2018; Weller, 2020).

However, adapting to a scenario of strong transformations does not mean relaxing the normative provisions that organize these policies as citizens' basic rights and guarantees. In

the post-pandemic scenario of technological changes, occupational transitions, and growth in precarious employment, the creation of a social policy institutionalization with intersectoral and coordinated action is required.

Integrating active and passive policies for the region's labor markets is fundamental to guarantee income for workers and their families, particularly in the current post-pandemic phase of slow recovery in employment levels. This would promote the necessary qualifications for workers and young people to face transition periods.

The combination of these policies is not new, and international experiences confirm their effectiveness. Several Nordic and continental European governments promoted broad active and passive employment policies between the 1950s and 1970s, improving their productive and welfare regimes (Bonoli, 2010; Swenson, 2002; Thelen, 2004). In the emblematic German model of co-determination of wages, the state, unions, and employers, for a long time, shared the important task of qualifying workers through comprehensive vocational training systems, conferring advantages on German industry in terms of maintaining high levels of labor productivity and social well-being (Thelen, 2004). From the 1970s onward, with the full employment crisis, the focus of these policies turned to the integration of unemployment insurance and professional training programs (Bonoli, 2010). This integration allowed workers access to a wide range of information on existing employment opportunities appropriate to their professional qualifications, giving rise to more active job creation strategies.

However, it has become common to state that these policies are no longer useful due to the "employment crisis" and technological changes. However, such policies were produced in a context very similar to the current one: occupational transition, rapid productive innovations, and a shortage of qualified work (Bonoli, 2010). Therefore, there is no reason to discredit these policies since the current problem in labor markets is not concerned with the advent of new technologies but rather a growing process of labor deregulation and the absence of public employment policies (Lanzara, 2024).

In Latin America, the deficiencies related to these policies are immense, starting with unemployment insurance programs. These are non-existent in most countries in the region and, for those with such a program, the benefits are brief, and the eligibility criteria for receiving them are demanding – therefore disregarding the high rates of job turnover – and, in many cases, the values of the monthly installments paid to unemployed workers are insufficient (Pinto, 2016). It is worth noting that incipient coverage and low benefit values limit the potential to stabilize salaries in periods of crisis (ILO, 2017). Only five countries have unemployment insurance programs with mandatory contributions: Argentina, Brazil, Colombia, Uruguay, and Venezuela. In most other countries, severance pay is the only form of protection available to the unemployed. It should also be noted that existing unemployment insurance schemes are poorly linked to professional qualification programs (Amorim & Bilo, 2019; Pinto, 2016).

Furthermore, the lack of public and comprehensive professional qualification systems with the capacity to process, coordinate, and disseminate information constitutes a major obstacle for Latin American countries to pursue more consistent policies for the labor market (Lanzara, 2016, 2024). Despite recent efforts to expand these policies, several qualification actions and

initiatives in different countries are dispersed among different agencies and ministries, have little or no intersectoral coordination, and lack bureaucratic capabilities and territorial reach (Novick, 2017).

The absence of these elements, in turn, facilitates the emergence of ineffective qualification measures offered by private or informal employment networks. In these networks, information regarding job allocation is disseminated preferentially to individuals with professional skills. The opposite occurs in less organized, poorer, and less educated groups, who encounter serious difficulties entering more stable occupations. The problems that affect these groups, such as the lack of information, tend to be ignored by conventional qualification strategies, as these groups do not fit the profile of the “classic” job seeker (Lanzara, 2016, 2024).

Also, social spending on active qualification policies is extremely low in Latin America. Surprisingly, this expenditure, which could be increased to generate policies to create qualified jobs post-pandemic, fell to 0.42% of regional GDP in 2022; 0.55% less than the level recorded in the first year of the pandemic, as a result of the closure of programs implemented in response to the crisis (CEPAL, 2023).

Countries in the region urgently need to build more comprehensive public systems of professional training and technological training. Improving professional skills and education and increasing enrollment in vocational education systems and higher education remains a major challenge for these countries, particularly for groups with low employability profiles (Novick, 2018).

Several studies point out that professional qualification policies in the region should take on a more prospective orientation, adapting to the different employability profiles of the population. This can anticipate problems generated by changes in the productive structure and reduce information asymmetries between demanders and suppliers of employment, especially the asymmetries that affect populations of informal workers and those subject to intermittent and precarious employment (Gontero & Albornoz, 2019; Gontero & Zambrano, 2018; Novick, 2017).

Regarding prospective employment trends, the pandemic and the growth of environmental problems highlight the need to create occupations to overcome these challenges. Therefore, the importance of the so-called “green economy,” social services, and infrastructure must be considered potential sources for generating qualified jobs in the region, combining productive inclusion strategies to strengthen the welfare state and urban and environmental policies. An activation policy willing to create qualified jobs in the social services sector, with an emphasis on strengthening the health industry, for example, is both timely, given the problems generated by the recent health crisis, and fundamentally important to strengthen the relationship between productive innovations, professional training, and social protection services (Lanzara, 2020).

In this discussion, it is necessary to consider the need for professional training for public agents providing services in the social area. The potential for absorbing qualified jobs in welfare services has been widely documented in recent studies and represents an important option to the phenomenon of automation and precarious work (Atkinson, 2015; Kerstenetzky, 2023). Thus, promoting qualification policies aimed at the urban infrastructure, environmental sanitation,

and social protection sectors and policies to induce sustainable consumption (Coote, 2021) is an option for Latin American countries to face the post-pandemic challenges and renew their employment and welfare policies.

It is also necessary to take advantage of the potential of the digital ecosystem to generate information and expand social service provision in Latin American countries. As highlighted by some authors, a solid database and information provided by technological means and the regular production of statistics, censuses, and registers are strong indicators of the state's capacity to penetrate their territories to logistically implement their public policy decisions (D'Arcy & Nistotskaya, 2017; Lee & Zhang, 2016). New digital technologies emerge as fundamental infrastructures for Latin American countries to integrate their territories into social service provision systems, generating data collection, processing, and analysis capabilities, thus allowing the potential of state interventions given inclusive development objectives (Martínez et al., 2020).

Furthermore, these new technologies could become essential allies in strengthening the capabilities to provide professional qualification policies in the region, particularly post-pandemic. This can prospect the necessary information to improve these policies' territorial reach and reduce information asymmetries regarding the offer of jobs and qualifications, which mainly affect the most vulnerable groups.

Digital transformation, in particular, could open up new opportunities for the paid domestic work and care sector by creating platforms that link households' labor supply and care needs. It could also facilitate the professionalization and certification of workers involved in these jobs, leading to a social and economic appreciation of this work. However, the advantages that the digitalization of this sector can generate for labor inclusion depend, to a large extent, on the regulatory and supervisory capacity of public institutions responsible for complying with labor laws (CEPAL, 2023).

Government adoption of these technologies would significantly enhance the effective monitoring of professional qualification policies in Latin America. Additionally, it would support the development of socio-professional skills among the target population.

Finally, the pandemic demonstrated that it is urgently necessary to improve the quality of educational systems in Latin American countries, correct their traditional asymmetry and segmentation, and strengthen the regulation and supervision of their labor markets due to the expansion of precarious work on platforms. Alongside the creation of comprehensive qualification systems, adopting these measures is fundamental to expand the population's access to qualified and protected work.

## CONCLUSION

The COVID-19 pandemic severely affected the labor market in Latin American countries and increased unemployment, informality, and poverty levels. This study demonstrated that the adversities produced in the poorly structured world of Latin American work made the

disadvantages resulting from workers' low qualifications more prominent, especially in a scenario of profound technological transformations.

The relevance of these inequalities increased by the effects of the pandemic challenges governments in the region to rethink their public employment policies. Consolidating these policies post-pandemic is a unique opportunity for Latin American countries to move toward a more dynamic and inclusive economy, avoiding the trap that condemns them to technological backwardness and low labor productivity.

As highlighted, in Latin American countries, the consequences of the recent loss of economic dynamism and the growing disruption of labor markets – added to the effects of the pandemic – have increased the number of young people and workers entering the precarious work market provided by new digital technologies. Moreover, liberalizing reforms and the dismantling of social protection systems have negatively impacted the region's labor markets.

The recent health crisis demonstrated that societies marked by strong inequalities in access to public citizenship services, including professional qualification services, are not sufficiently prepared to face the challenges of technological changes. They require public policies that promote the dissemination of skills to improve the qualified insertion of young people and the most vulnerable workers in the knowledge economy.

It is worth highlighting that the effectiveness of these policies depends on more incisive government action to regulate digital platforms. In this aspect, the pandemic demonstrated that the democratization of access to knowledge is a demand that goes against the current trends of monopolization of information, exploitation of virtual work, and extensive commercialization of data imposed by digital companies. Therefore, governments in the region face the challenge of dissuading, through state regulation, the increasing (and unfair) returns that enhance the power of these monopolies.

It is important to highlight that “market solutions” will be unable to meet the growing human capital needs required by economies increasingly focused on productive innovations and new social enterprises, especially to meet the objectives of development intended to be inclusive and environmentally sustainable – objectives that the pandemic demonstrated are unavoidable.

As the pandemic revealed that disseminating knowledge is an essential public good, the government has a fundamental role in offering policies that improve socio-professional skills and reduce information asymmetries in labor markets.

As mentioned in this study, the main factors inhibiting the development of these skills in Latin American labor markets arise from information asymmetries between job providers and job seekers, which harm the poorest workers without access to information.

A comprehensive public employment system with the capacity to expand and disseminate information reduces the risks related to occupational transitions, especially for young people who face serious difficulties in entering the job market; provides agility to labor intermediation services, particularly concerning new skills in demand and the heterogeneity of jobs, which tend to increase the time spent searching for work; induces employers to internalize training costs; and offers more appropriate professional certifications in terms of training content.

Creating efficient information and monitoring systems to generate integrated education, work, and income policies is vital for Latin American countries to overcome the structural problems of their labor markets and educational systems, which, as highlighted, were enhanced during the pandemic.

Finally, it is necessary to emphasize that the successful implementation of these systems must rely on the broad participation of unions, cooperatives, and informal workers in their management, coordination, and decision-making structures. This will enable the formation of coalitions capable of concentrating the society's interests around more permanent and effective employment policies.

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## **CONFLICTS OF INTEREST**

The authors have no conflicts of interest to declare.

## **AUTHORS CONTRIBUTIONS**

Arnaldo Provasi Lanzara: Conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing – original draft; writing – review and editing.

Mario Henrique de Oliveira Castro: Investigation, methodology, resources, software, validation, visualization, writing – original draft, writing – review and editing.