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Leadership of Latin American women in the professional scientific and research context: an exploration based on the gender gap(*)

Vega Osuna, Luis Alfredo
Universidad Autónoma de Occidente, México
Investigador Red REOALCEI, México y Colombia
https://orcid.org/0000-0003-3844-2245
luis.vega@uadeo.mx

Alvarado-Peña, Lisandro José (Autor para correspondencia)
Universidad César Vallejo (UCV), Perú
Investigador Red REOALCEI, México y Colombia
https://orcid.org/ 0000-0001-5097-811X
lalvaradope1@ucvvirtual.edu.pe

Vega Esparza, Reina Margarita.
Universidad Autónoma de Zacatecas, México.
Investigadora Red REOALCEI, México y Colombia
https://orcid.org/0000-0001-5151-5977
reinamargarita@unizacatecas.edu.mx

Murillo Castro, Ignacia
Universidad Autónoma de Occidente, México
https://orcid.org/0000-0001-7187-7959
muci.imc@gmail.com

Muñoz Castorena, Rodolfo Valentín
Universidad de Guadalajara, México
Centro Universitario de Ciencias Económicas y Administrativas (CUCEA)
Investigador Red REOALCEI, México y Colombia.
https://orcid.org/0000-0002-5357-357X
rodolfov@cucea.udg.mx

Amaya Sauceda, Rosas Amadeo.
Universidad Nacional de Trujillo, Perú.
Investigador Red REOALCEI, México y Colombia
ramaya@unitru.edu.pe
https://orcid.org/0000-0002-8638-6834

Abstract

Gender equality is clearly framed by and defined in the knowledge society in particular. Struggles towards all goals in this regard unfold in the context of a large gender gap and unequal distribution of power. These are circumstances in which women are clearly disadvantaged, facing obstacles in every aspect of their lives: family, relationships, education, and, therefore, work. Occupying senior leadership roles in institutions related to science and research remains an arduous task. The study takes a descriptive and analytical approach, drawing on official documents by international agencies such as UN, UNESCO, UN WOMEN, ECLAC, WB, IDB, and CODS as well as specialist websites. Title searches were carried out and variables identified through key words and phrases in recently published scientific articles found in open-access databases and scientific journals such as Scopus, WOS, SciELO, Redalyc. It found that intensive assertion of claims has resulted in the enshrinement of many women's rights, the unconditional support of an array of international organizations, advances in narrowing the gender gap, and the positioning and leadership of women in professional scientific contexts, as part of the broader pursuit of parity between men and women.

Keywords: Leadership of Latin American women in science and research; Gender gap in science and research, Gender parity in the professional field; Women in STEM areas.

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Introduction

Our highly globalized world often reveals sensitive and important issues for certain sectors of society—not least prevailing gender inequality and its impact on the positions of leadership to which women rightly aspire in the knowledge society. Given the unequal distribution of power, women are placed at a disadvantage in all spheres of their lives: family, relationships, professional education, and, in turn, work. This is especially true of women aspiring to senior roles in many fields, including those related to science and research (Borrell et al. 2015).

Science and research are two sectors in which female professionals across all fields of knowledge still have cause for complaint. Over time, this has sparked intense debate, reflections, and radical yet valid postures related to women's incursions into spaces traditionally occupied by men.

In the academic sphere, women's participation in high-status or management positions at universities or related institutions is now dwindling, thereby increasing the gender gap. This is also true of the scientific sphere, in which female representation is lower the higher the level of seniority, demand, or category (Bello, 2020)

This was verified in a study on prominent female scientists carried out by Alice Abreu and other researchers, who detected that women are underrepresented in this sector and decrease in number the further up the scientific ladder one goes, and that this situation is repeated in different professions, disciplines, institutions, and countries. They therefore see it as a concern and a challenge to work towards a cross-cutting gender approach and the institutionalization of equity policies

The limited participation of women in high professional or research and scientific academic fields is related to the phenomenon of "vertical segregation," which impedes their progress towards leadership positions to the same extent as their male counterparts (López-Bassols et al., 2018). Another determining factor is the distribution of economic resources due to low budgetary allocations for implementation by women in academic activities—a phenomenon known as "the leaky pipeline" (Borrell, et al., 2015; Segovia-Saiz et al., 2020).

To be sure, it is unconscionable that in the 21st century women's participation in management or leadership positions in science, research, academia, and other sectors of importance for social and economic development cannot be compared favorably to that of men with the same level of professional development.

Barriers and "glass ceilings" unrelated to experience, training, or skills persist. For example, the lower pay of female scientists considerably influences and impedes their career progression, resulting in a limited presence of women in science, technology and research (STR) systems in some countries (López-Bassols et al., 2018)

Therefore, over time, genuine struggles have emerged to overcome the centuries-old barriers to women's actions and decisions; and while much ground has been covered, there also remains much still to be done for present and future generations.

This fact is borne out by research and statistics; for instance, UNESCO (2022) found that women's involvement in STR over the last 20 years has brought about drastic changes in the field in Latin America and the Caribbean and elsewhere. Indeed, female scientists have made strides in furthering their scientific and technological academic production, improving their presence and visibility, and securing fairer treatment, all of which has allowed them to develop a clearer vision of sustainable development (UNESCO, 2022).

Moreover, although women around the world remain subject to the boundaries of activities classed as female, they are also involved in a process known as the "detraditionalization of gender" whereby they can rid themselves of certain beliefs, standards, and habits (2017, p.87). This has given rise to socially conditioned behaviors that call into question the frontiers traditionally considered typically male or female and with it a rethink of the old, prevailing paradigms, beyond the female or the male, in different social, political, religious, and cultural spheres (Bellón, 2017).

From this point of view, women's accolades and achievements over time, in different societies and cultures, have been the focus of study the world over, and the empowerment of many women is recognized despite the adversities, limitations, and glass ceilings associated with tradition, the division of professional and gender roles, and how these are conceived; a key example is the relationship between motherhood and work that persists in many occupational contexts (Segovia-Saiz et al., 2020).

This positioning, which stems from perseverance and constant work, has given rise to significant advances. But what marks women apart from the male gender is the effort of collective introspection that has allowed them to recognize determination and competitive potential in themselves through a permanent desire to attain equality by overcoming the disadvantages the social environment imposes and by throwing off the violence, stereotypes, injustices, and stigmas of the past that encumber their personal development aspirations (Vázquez et al., 2016).

These processes are backed by women's activism and movements across the planet, and by states, which lead key efforts in the framework of co-responsibility and based on the creation of normative, legal, and public policy constructs relevant to each country. Also notable are the proposals devised by the United Nations, which encompass women's civil, legal, social, economic, cultural, and religious rights; in particular, the Agenda 2030 sets the challenge of promoting gender equality and the empowerment of women and children (Comisión Económica para América Latina y el Caribe – CEPAL, 2017).

However, fostering parity between men and women is not a task confined to the "female sector," requiring men's commitment to value and exalt the functions and roles performed by women, and to support and defend the premises of gender equality. This perspective stresses the importance of women's participation in and contribution to different spheres—science and research, technology, culture, and social—under conditions of increasing equality and equal or greater prestige.

This study takes a descriptive, analytical, and retrospective perspective, focusing on the leadership, gender parity, and participation of Latin American women in different sectors of science and research. It is based on a gender gap and gender equality approach and draws on source materials published by a range of authors and international organizations.

The methodology involved a title search for articles on this topic published recently (in the last years in peer-reviewed open-access scientific journals indexed in the high-impact-factor databases SciELO, Redalyc, Scopus, and WoS. Moreover, searches were carried out using the portals of international organizations and institutions such as ECLAC, UNESCO, UN, UN Women, IDB, the World Bank, and CODS, as well as some websites specializing in the field.

The study variables were identified by inputting key words and phrases such as "women's leadership," "women's empowerment," "gender gap in science and research," gender equality/parity in the scientific field," "gender gap," and "women in STEM areas." The articles and other documents read contribute to and highlight the importance of female action in all spheres, describing how women have overcome obstacles over time on the path to achieving personal and societal objectives and participating successfully in the various professional fields of science and research.

In this context, the present study proposes to stress the importance of Latin American women's leadership in social, scientific, and research fields, as well analyzing the achievements and autonomy they have attained over time. To propose arguments about women's incursions into priority areas of science, with special emphasis on their successes, an up-to-date vision of the problematic was constructed by way of parallel analysis of the gender gap, which remains an important issue in our time. To this end, it was important to pose the following question: Are women exercising leadership roles in the different professional areas of science and research in Latin America, despite the prevailing gender gap?

Theoretical framework

Defining female leadership

Female leadership is determined by women's participation in positions of decision-making responsibility across various areas (social, labor, and cultural), allowing them to propose innovative solutions as well as leading human talent and the groups they comprise. Equally, these roles condition women's capacity to implement strategies that reveal the style of leadership they exercise at the head of an organization or company (Anáhuac Mayab, 2022).

Women with leadership roles are characterized by their management style, innovation and openness to change, capacity for listening, empathy, style and effectiveness in people-oriented communication, teamwork, proactivity, intelligent decision-making, and horizontal leadership. Pioneering gender representatives in the late 20th and early 21st centuries have included Marilyn Loden (in the 1980s), Sally Helgessen (until 1993), and Helen Fisher (the 2000s) (Anáhuac Mayab, 2022).

Female leadership and empowerment are aspects promoted within the family and developed from when young children start school, continuing through successive educational institutions and different professional training spaces (González-Peláez, 2020).

Women's social and professional role

Analyzing women's performance as social beings, it is worth taking into account the roles and activities directly related to the home and the family that are traditionally considered particularly female. These roles are rooted in the origins of human history and help us understand women's difficulties reaching important management and leadership positions and achieving the expected outcomes when it comes to decision-making (Gutiérrez et al., 2020).

Traditional gender roles, generally imposed by the family and the culture and disseminated by the media, take precedence in almost all societies, influencing girls' modes of thought and action from an early age. These behaviors, suggestively imparted through girls' upbringings and formation, are sustained into adulthood, favoring the internalization and application of gender stereotypes such as housewifery and marriage as priority roles for women.

This situation stems not only from traditions and the family but also norms associated with governments, social institutions, religion, and other factors which impose modes of thought and behavior seen as "natural" for women, Thus, in many contexts, the dominance of men is reinforced at the institutional level as a legitimate androcentric model (Zuloaga & Moncayo, 2014).

For this reason, it is important to recall the causes of this conflict, as in many ways they inhibit women's vitality and self-worth, precipitating negative feelings that affect how women see particular situations, how they accept circumstances, and how able they are to take actions that could bring about a paradigm shift. But while institutions legitimize role identity as a social compact, the male and the female continue to be fueled by the logics of power inherent to each of these positions (Zuloaga & Moncayo, 2014)

Here, it is important to take into account the other side of the coin: the vast majority of women see no problem with fulfilling the social role of wife and mother due to family customs or traditions in most countries on the planet, which means these roles are no longer regarded as a duty or obligation but as an important family aspiration. On this basis, many cite the role of motherhood and forming a family as their foremost aspiration, before professional development (but without diminishing its importance), as a product of their own specific decision-making in the absence of any external pressures.

Thus, the many women who, like their male counterparts, strive to develop professionally and attain senior posts in their professions—be it in science, research, academia, or the broader labor environment—tend to face the dilemma of choosing between their occupational role and their role as the fundamental "emotional pillar" of the family.

For Vázquez et al. (2016), the consideration of procreation and maternity as women's "natural vocation" can limit their entry into the various labor and economic spheres, as well as limiting the professional development of those who are already professionals in positions of relative importance.

There is an understanding among women that achieving personal goals, such as starting a family or furthering their professional status, while sustaining mental and emotional wellbeing requires dedication—and in the former case, allocation of quality time to their homes, spouses, and children—as part of a voluntary, if difficult, decision-making process about their own life course. However, in the Latin American professional sphere, there remain subjective and unfounded beliefs that underestimate women's skills, potential, and physical capacity and allege susceptibility to work overload and personal insecurities (Flores-Domínguez et al., 2019).

Though the situation has changed for good in many geographical contexts, historically the social or cultural activities played by women have been imposed and discriminatory, framed by circumstances of injustice associated with patriarchal norms that conditioned the absence of rights "for being a woman alone" and exacerbated gender disparities (Díaz & Ledesma, 2022; Ordóñez et al., 2022).

It should be recalled that, over time, amid the increasing inclusion and positive performance of women in the job market across different social strata, geographical contexts, regions, and countries, these roles have been diversified and are no longer deemed obligatory or essential conditioners of the gender.

Moreover, in modern, contemporary families and households it is increasingly common to witness an exchange of roles whereby the man is in charge of the domestic sphere and the woman is in paid employment outside the home. This has driven the evolution of the female labor force and reflects significant shifts across a range of cultural, management, religious, political, and other dimensions (Díaz & Ledesma, 2022). This phenomenon, which reflects changing realities in many developed and developing countries and societies, looms large in discussions of gender equality.

Díaz and Ledesma (2022) have stressed that, despite attempts to invisibilize and discredit women's work and contributions to society, women gained more recognition than ever before for their value as social beings and fundamental pillars in the family structure and organization but also for their role in high scientific, cultural, economic, and other important professional spheres. Indeed, women now represent 43% of the global labor force, demonstrating the levels of leadership and power they have achieved in companies and organizations of all kinds (Anáhuac Mayab, 2020).

The presence of women in the workplace is a guarantee of participation and democratization, and the characteristics, skills, and qualities they possess have allowed them to overcome challenges in different labor and professional spheres (Pando et al., 2022).

Female leadership spaces

As utopian as it may seem, women in societies around the world have been able to exercise leadership in line with their interests and approaches. However, gender discrimination has thwarted them in their goal of making themselves heard in different contexts. It is therefore important to recognize that, to overcome gender inequalities in positions of power, it is necessary to include women, along with their opinions and contributions, in decision-making spaces (Task Force, n/d).

For decades, the various fields and branches related to science have been represented primarily by men. However, scientific–technological advances, development, and evolution require competences and perspectives that contribute diversity of thought and ways of envisaging creative solutions to substantive problems, to which the equal participation of women is essential.

One branch of the sciences in which women have tended to participate to a large degree is the health sector. Centeno-Leguía et al. (2018) have noted the feminization of the field of medicine, pointing out that the extensive involvement of women in degree programs focusing on primary care fields (approximately 6% of all female students) is such that, over the past 20 years, they have come to represent half of all medical students (Flores-Domínguez et al., 2019). There have also been important changes related to women's income and graduation in comparison to men in medicine degree programs, according to figures for the United States and the United Kingdom (Centeno-Leguía et al., 2018).

In this regard, Giner-Soriano et al. (2019) have noted that despite the high representation and presence of women in the global health sector, the same is not true of female leadership in the scientific environment more broadly. Similarly, in the field of research there remains a gender gap characterized by under-representation of women in senior positions(Giner-Soriano et al., 2019). Indeed, difficulties persist for women who seek to elevate their status and access positions of greater seniority and decision-making responsibility, and they remain outnumbered by male entries into the same positions (Flores-Domínguez, et al., 2018).

According to figures for Peru, in 2011 women accounted for 49% of those employed in the different fields of knowledge—empirical, academic, organizational, and scientific—yet only 20% to 30% of leadership positions (Centeno-Leguía et al., 2018). Numerous studies focusing on medical specialties such as cardiology, dermatology, podiatry, and others have found that female representation has increased but without overtaking that of men (Giner-Soriano et al., 2019).
To be sure, these figures are not especially favorable, yet the very real difficulties do not negate the significant gains made by women in relation to the gender gap problematic.

Likewise, Gutiérrez et al. (2020) have shown that women's involvement in leadership positions at educational institutions—along with other professional spheres—has gradually increased on the initiative of many to prepare professionally and enter posts traditionally occupied by men in fields of science, academia, and research.

Statistically, it is undeniable that the Latin American region lags behind North America, Europe, and some other regions when it comes to women's positioning in scientific and research development (Camacho, (2017; Gutiérrez, et al., 2020). This has a direct and negative bearing on women's actual involvement in these areas of knowledge and therefore affects national development.

The results in these areas show that the figures are on an upward trajectory; the intentions and interests of both individuals and women's professional groups have meant greater female occupation of leadership positions in fields such as the university sector in recent years (Gutiérrez et al., 2020).
At present, many female professionals occupy high-value, highly competitive posts in the sciences, particularly the health sector—which, as we have seen, favors both female leadership and employment in general. However, due to the obstacles that remain, it is important to continue championing gender equality (Mousa et al., 2022).

Presence of women in fields of science, technology, engineering, and mathematics (STEM) in Latin America: some figures

The increasing participation of women in areas of science is beneficial, though situations such as income discrepancies and unskilled positions persist in many countries in the region. This is particularly true of the fields of technology and engineering, where the presence of men is more common.

Indeed, women are still underrepresented in STEM fields, particularly the highly remunerated fields of IT and engineering. Therefore, there is a need for greater equality of opportunity; as UN Women have acknowledged, "to foster sustainable development, drive innovation, social welfare and inclusive growth we need more women in STEM. This would help to reduce pay gaps, stimulate women's economic development, and promote a workforce of diverse talents.

It should be stressed that the low participation of women in the global scientific field may be due to a lack of compatibility between work and personal/family life, as well as pay gaps. Both circumstances have encumbered women's integration into the world of work, forcing many to accept jobs that may not be their preference (López-Bassalos et al., 2018).

The percentage of women who have managed to break down barriers of inequality and position themselves in these spaces under equal conditions as men remains very low. In Latin America and the Caribbean there are fewer male than female researchers and in the sciences they account for less than 30% (UNESCO, 2023).

The figures in Table 1 feature in an article published by the Center for Sustainable Development Objectives for Latin America (CODS) and provide evidence of women's entry into this field in Latin America. The data correspond to the five countries with the greatest female representation

and although they do not disaggregate the areas in which they work, they do reveal the proportion working in the scientific field.

The table 1 shows that the country with the highest proportion of women working in the sciences is Venezuela, at 61.4 , followed by Guatemala, at 53.2 %, and very closely behind by Argentina, at 53 %. The countries with the lowest percentage participation are Colombia and Bolivia, with 37.4 % each (CODS, 2021).

Table 1. ***Participation of women in scientific areas Latin America***

Country	Proportion (%)	Involvement in science-related activities	Number of women (%)
Venezuela	61.4 %	Working in health sector / Health personnel	70 %
Guatemala	53.2 %	Working in education sector	45 %
Argentina	53.0 %	Students: Undergraduate and masters	55 %
Colombia	37.4 %	Doctorate	44 %
Bolivia	37.4 %		
Peru	29.9 %		

Source: Compiled by authors, 2023, based on CODS (2021) data

In a 2016 report the World Economic Forum (WEF) focused on the lack of women in STEM fields. Among other factors, this is due to a lack of capacity for professional development, which means that even if new posts are created that can be occupied by women, there would still have to be a corresponding number of female professionals trained in the requisite areas. However, the problem could be compounded in the future by unemployment associated with automation. This is one of the obstacles that must be overcome if women are to attain the objectives of professional leadership and placement in STEM (Arredondo et al., 2019).

As UNESCO have argued in a document prepared with a view to promoting gender equity in STEM, the participation of a larger number of women and girls in studies, courses, or degree programs in this area and the resultant increase in the availability of talent would assure the assertion of claims for equal rights, generating more benefits, equity, and development in the region (Assorbi, 2023). For this reason, at the Latin American level different programs and initiatives have been applied with the aim of reducing the gender gap in STEM, though for various reasons there remains a limited presence of girls and women in these fields. These include:

" […] less awareness among young women about the potential of STEM studies; the presence of gender stereotypes and sexism in society; the intersectionality factors that cause girls and women to be discriminated against to a greater extent both in the classroom and in their professional careers; the lack of visibility of female role models who alter stereotypes and increase interest in STEM; the lack of care policies with a gender perspective that support the professional and academic development of girls and women, to mention the main ones" (Assorbi, 2023, p. 7).

Gender inequality in the STEM areas is persistent and notable. Efforts in recent years have been insufficient, in that there is said to be one women for every three men within STEM, whether it be on a degree program or occupying a senior position. Thus, a highly marked difference and a considerable gender gap remains (Assorbi, 2023).

The glass ceiling is much more difficult to break for women in STEM fields than for those in other areas. As noted earlier, this is because the number of women who enter is not equal to the number who are already advancing to senior or leadership positions (Whiting, 2023). The WEF's Global Gender Gap Report 2023 notes that after the COVID-19 pandemic, worldwide gender parity reverted to 2019 levels (Whiting, 2023). Meanwhile, the World Bank has found that only one third of women who form for Latin American firms are engaged in STEM professions, indicating that the gap is still large (UNESCO, 2023).

Given the issue of gender inequality and the low number of women trained in STEM, in Latin America efforts are being made to involve females of all ages (girls, adolescents, and women) to drive gender inclusion in academic and vocational training related to artificial intelligence (Moreno, 2023).

However, for Latin American women, progress in this area hampered by the fact that most research focused on the development of AI technologies is based in more advanced countries of the Global North (Collet et al., 2022). The task is all the more arduous when one factors in the general disinclination among women to pursue a profession in this field, as demonstrated by the low gender participation rates in most countries in the region (see Table 2).

This table 2 shows that few countries in Latin America have high proportions of women undergoing professional development in the sphere of AI: Argentina has the highest share, at just 34%, and also occupies "first place in the proportion of AI publications with female authorship," Moreno (2023), followed by Mexico (27%) and Brazil (26%). These are the only three LAC

countries located in the top 34 worldwide, with only slight differences when it comes to women's involvement in publications and activities requiring AI skills (Moreno, 2023).

Table 2. ***Participation of women in AI- and STEM-related activities in Latin America***

AI/ Country	Share (%)	STEM / Country	Share (%)
Argentina (*) First place for publications on AI authored by women	34 % 15 % (*)	Mexico	38 %
Mexico	27 %	Argentina	34 %
Brazil	26 %	Brazil	30 %
		Chile	25 %

Source: Compiled by authors, 2023, based on UNESCO (2023); Moreno (2023)

Female leadership in the public sector

A report published by the IDB notes that female leadership in the public sector has attained visibility in contexts where it did not previously exist through the prioritization of their interests. For example, women have contributed to the efficacy and efficiency of public services as a result of their decision-making capacities and the different gender perspectives and particularities that render them most knowledgeable about these problematics (Naranjo et al., 2022)

For the United Nations, it is important to recall that gender equality in the sciences is an important driver of sustainable development, but despite this women in the scientific arena continue to come up against barriers; this is evident in the worldwide statistics, which show that, overall, fewer than 30% of researchers are women (Fundación CYD, 2021).

Having analyzed the different aspects surrounding the low participation of women in areas of science and thus in high-performance research areas, it can be inferred that the phenomenon is directly related to lack of government investment and budgetary allocation. This clearly illustrates the lack of effort made to develop women's STEM competencies at university level—and the Latin American countries are those that invest the least, spending only a third of what developed countries do (Arredondo et al., 2019).

Table 3

Leadership and gender parity in public administration. Study of Latin America, 2021–2022.

County	1.Equal participation (>50%): 55.9%	2. Moving towards parity (41% - 50%): 46%	3. Low participation (30% - 40%): 36.7%	4. Very low participation (<30%): 19.8%
Trinidad and Tobago	68.8 %			
Costa Rica	53.5 %			
Panama		47.9 %		
Colombia		47.1 %		
Paraguay		46.1 %		
Dominican Republic		45.0 %		
Argentina			40.7 %	
Peru			37.5 %	
El Salvador			37.2 %	
Uruguay			36.3 %	
Chile			34.9 %	
Ecuador			34.3 %	
Mexico			31.1 %	
Guatemala				24.5 %
Brazil				18.6 %
Average for 15 countries:		**41.5 %**		

Source: Compiled by authors, 2023, based on Naranjo et al. (2022)

Numerous research projects have demonstrated that the number of women in leadership roles in Latin America remains limited. One prominent example is the study that Naranjo et al. (2022) presented in conjunction with the IDB, whose results—spanning December 2021 to March 2022—demonstrate the percentages of women who access leadership positions in the public sector, as well as the hierarchical levels they occupy in the 15 countries analyzed across the following dimensions: "1. Hierarchical decision-making; 2. high-level political links; 3. legislative capacity; 4. budgetary management; 5. human resource management" (Naranjo et al., 2022, p.17).

In their study, Naranjo et al. (2022) verified these positions to ensure a comprehensive analysis based on four basic metrics for the categorization of each country: 1. "equal participation,"2. "moving towards parity," 3. "low participation," and 4. "very low participation." The results are outlined in the table below.

According to the figures displayed in Table 3, the largest share of women is recorded in two countries, Trinidad and Tobago and Costa Rica, both of which exceed the average for this study (41.5%) and are located in the "equal participation" category (>50%), with an average of 55.9 %. Another four countries that exceeded the average were Panama, Colombia, Paraguay, and the Dominican Republic, which have "moved towards parity" with an average female share of 46%.

The third category groups together seven countries with low levels of participation (below the average of 41.5% but in excess of 30%): Argentina, Peru, El Salvador, Uruguay, Chile, Ecuador, and Mexico, where women's average share of leadership positions in the public sector is 36.7%. This figure is below the average, and is indicative of low levels of gender parity. Finally, there are two countries, Guatemala and Brazil, with very low shares of women in leadership posts (<30%) averaging 19.8%, which is well below the average for the (Naranjo et al., 2022, p. 17).

The data obtained from part of this study, according to the authors, has elucidated the positive aspects of women's participation in senior positions, providing evidence that their performance has had a major impact on the public administration sector. The increase and promotion of women's participation has been found to contribute to reducing levels of corruption in different areas and to boosting social spending on health and education (Naranjo et al., 2022).

The presence of women in senior and leadership posts should not be restricted solely to parity with men nor to mere statistics. Rather, it should go hand-in-hand with the reduction or elimination of vertical and horizontal segregation. A tangible contribution can be made through decision making, which can help to create a reference point in the region. As Naranjo et al. note, "it is time to measure progress on gender matters based on results, not on the mere adoption of regulations, standards, and policies, as in practice nothing changes [through them]" (2022, p.44).

In Latin America, according to the ILO, women account for a majority share of the public sector workforce (52%), but a minority in the private sector (40%) and in management positions (41%) (Naranjo, et al., 2022). Table 4 presents the proportion of women in situations of parity with men, as well as the percentage of over-representation and under-representation in the Latin American public sector.

Table 4
Percentage of gender parity in the Latin American public sector

Parity (82 % of LA countries)	Over-representation (Women)	Under-representation (Women)
64%	18%	18%

Source: Compiled by authors, 2023, based on Naranjo et al. (2022)

The gender gap represents a situation that is replicated in most Latin American countries; this is in contrast to the international norm, insofar as gender parity has been attained in 82% of countries. As can be seen in Table 5, in Latin America the percentage of gender parity stands at 64%. However, in some countries women are over-represented by 18%, whereas in others they are under under-represented by the same proportion (Naranjo et al., 2022).

To conclude, the future of women in leadership roles and the challenges to face in terms of gender equality must raise awareness about the importance placed upon diversity and inclusion. In this regard, Emma Fernández (president of the Asti Talent & Tech Foundation) has stated that "[…] even though the data is bad, we are generating change" because "the leadership that is currently in demand in companies has much more feminine values such as empathy, dialogue, teamwork, and closeness." It is thus necessary to take advantage of female talent to create sustainable companies (Fundación C & D, 2021).

Conclusions

Amid the shift from the drawbacks, obstacles, and limitations imposed by historical tradition, the incursion by women into senior management and leadership positions in public and private institutions, companies, or organizations—whether in the sphere of scientific research or elsewhere—is much more commonplace than in decades past. Objectively speaking, this increasing participation has been a consequence of firm decision-making by women vis-à-vis their professional training and development, which has driven then to attain their goals and to take advantage of the different opportunities presented.

Beyond the unfavorable analyses or figures presented in many studies regarding the gender gap, gender inequality, and the absence of female leadership, it is worth stressing that despite the various achievements and goals still to be attained, it is necessary to objectively analyze the manner in which women's empowerment levels have been elevated over time—especially in terms of their strength and potential to adapt to the changes they have shaped and experienced at each stage.

Analyzing everything from a more optimistic standpoint, it is possible to discern a more promising outlook regarding new professional roles and occupations for women in the present and the near future, but without their necessarily renouncing the roles traditionally associated with the female

gender. Indeed, the two dimensions ought to complement one another without one undermining the other. In this lies the capacity and potential of Latin American women to reinvent themselves and perform in both contexts, balancing professional and personal goals in proportion to their aspirations.

Above all, it is important to understand that situations arising may become ongoing challenges, and that there will always be barriers to overcome. The barriers imposed by society (including the androcentrism and machismo that prevails in many relational and work ties), those imposed by governments via legislative and regulatory frameworks that violate rights, and glass ceilings within professional development all have a significant impact on the decisions that women must make, and as a result can diminish possibilities for personal and professional development. Moreover, problems arise when women are motivated by coercion, often through pressure to remain in the home, leading to difficulties attaining objectives related to professional and economic autonomy. The intense rights-based struggles have led to the attainment of many key rights for women who today are fully backed by vast numbers of non-governmental, non-profit, and international organizations that champion the female cause in the face of any injustices or rights violations.

There remains a need for an awareness-raising process aimed at women's detractors and focusing on equality of conditions as well as the qualities, characteristics, and creative potential that have allowed women to stand out in diverse contexts and circumstances.

Rather than fixating solely on the arguments surrounding the gender gap and gender inequality problematic, and on attainment of the necessary and sought-after equality, there is a need for a shift of focus onto the positive and beneficial aspects that have arisen from the positioning of women in professional, social, and cultural contexts. Indeed, a limitation of current analysis, in almost all publications on the issue, is this negative perspective. There is therefore a need for studies to generate premises based on a more positive position, without overlooking the fact that the gender gap is the cornerstone of women's struggle and necessarily the focus of the different discourses.

Overall, the approach to the current situation must allow for greater possibilities and new paths of dialogue and discussion on the issue in future research, drawing on a more optimistic and motivational perspective that views the glass as half full rather than half empty. A recommendation would be to carry out more in-depth research on women's expectations and preferences regarding their life decisions and their professional and personal development paths to allow for more objective measurement of the figures on the gender gap, gender parity, and professional leadership.

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