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Unlocking the Door to Equality: Impact of Colombia's Educational System on its Female Participation Rate in the Labor Market

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Abstract

Despite rising female education in Colombia, women still face significant obstacles as regards their labor force participation. Urban areas offer better job opportunities with higher income premiums in productive sectors, while rural areas rely heavily on agriculture. The findings reveal an increasing women's participation rate in the labor market attributed to rising female educational attainment at the undergraduate and postgraduate levels. Enhancing technical training skills has also positively impacted labor force participation. The National Learning Service (SENA) has played a significant role in empowering women with the suitable skill set for improved employability, mainly through entrepreneurship programs in both rural and urban areas. Hence, women's education and employment in well-paying jobs have contributed to narrowing the gender wage gap in Colombia over time.

JEL-Classification: E24, J21, J31, J38
Keywords: Educational Attainment, Female Employment, Gender Wage Gap, Public Policy

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Introduction

Despite rising female education in Colombia, women still face significant obstacles in labor force participation, experiencing higher unemployment rates (18.2 percent among women in 2021 compared to 10.9 percent among men) and lower participation rates (61.6 percent for women in 2019 compared to 84.5 percent for men) (DANE, 2019).

This paper provides a comprehensive analysis of education and employment in Colombia, highlighting urban-rural disparities and the impact of Colombia's educational system on its female participation rate in the labor market:

Primary research question: How has the educational system impacted women's participation rate in the Colombian labor market?

Secondary research question: How does the current educational structure in urban and rural Colombia compare?

Third research question: How effectively have the initiatives implemented by the government addressed the gender gap?

To do so, the article uses particularly data from the World Bank's World Development Indicators (WDI) database, the National Administrative Department of Statistics of Colombia (DANE), the OECD, and papers from the Government of Colombia.

Colombia's education system has undergone significant changes and improvements over the past few decades. Since the 1990s, the Colombian government has prioritized education, implementing various policies and initiatives to increase access to education and improve its quality (Barrera & Patrinos, 2014). According to a report by the OECD (2021), 55 percent of females aged

25 to 34 in Colombia had tertiary education degrees, compared to 42 percent of males in the same age group.

This trend is attributed to various factors, including the government's prioritization of education for girls and women, increased access to education, and efforts to reduce gender disparities in education (Mora & Londoño, 2016).

According to the DANE (2021a), as of August 2021, the unemployment rate in Colombia was 14.2 percent, with an informal employment rate of 48.7 percent. The labor market in Colombia is characterized by a high degree of informality, particularly in rural areas, where it is estimated that only 14 percent of the workforce is formally employed (Ávila-Bonilla & Torres-Gómez, 2021).

Despite these challenges, the Colombian government has implemented several programs and policies to address the issue of unemployment and promote formal labor force participation. One such program is the National Learning Service's (SENA) Emprende Rural, which seeks to promote rural entrepreneurship and employment by developing technical capacities and strengthening initiatives for rural production (SENA, n.d.).

Another program is the Youth Employment Service (SNE), which aims to provide training and employment opportunities for young people (DANE, 2021b). Furthermore, partnerships with commercial organizations and foreign groups have been created to improve educational and professional training possibilities, allowing people to compete more effectively in the job market. Through these initiatives, the government aims to foster a more equitable community by reducing the disparity between metropolitan and rural areas (Bértola & Williamson, 2017).

According to Kalaitzi et al. (2017), women lack authority roles across all economic areas. Only about 30 percent of managerial jobs are occupied by women (DANE, 2001). However, Colombia has made significant progress in promoting education rights over the last decade. From 2006 to 2017, women's participation in education almost doubled from 32.8 to 58.5 percent United Nations Development Programme (UNDP) (2019).

Following Colombia's Global Entrepreneurship Monitor (GEM) report in 2018, secondary education remains the most common education level among women entrepreneurs, accounting for 31.3 percent of such entrepreneurs in Colombia's Total Entrepreneurial Activity (TEA). University education is women entrepreneurs' next most common education level, representing 26.3 percent of entrepreneurs in Colombia's TEA Global Entrepreneurship Monitor (2018). Mendoza and Gamboa (2019) found that female entrepreneurs in Colombia were more likely to have higher education and that education level was positively related to entrepreneurial intentions.

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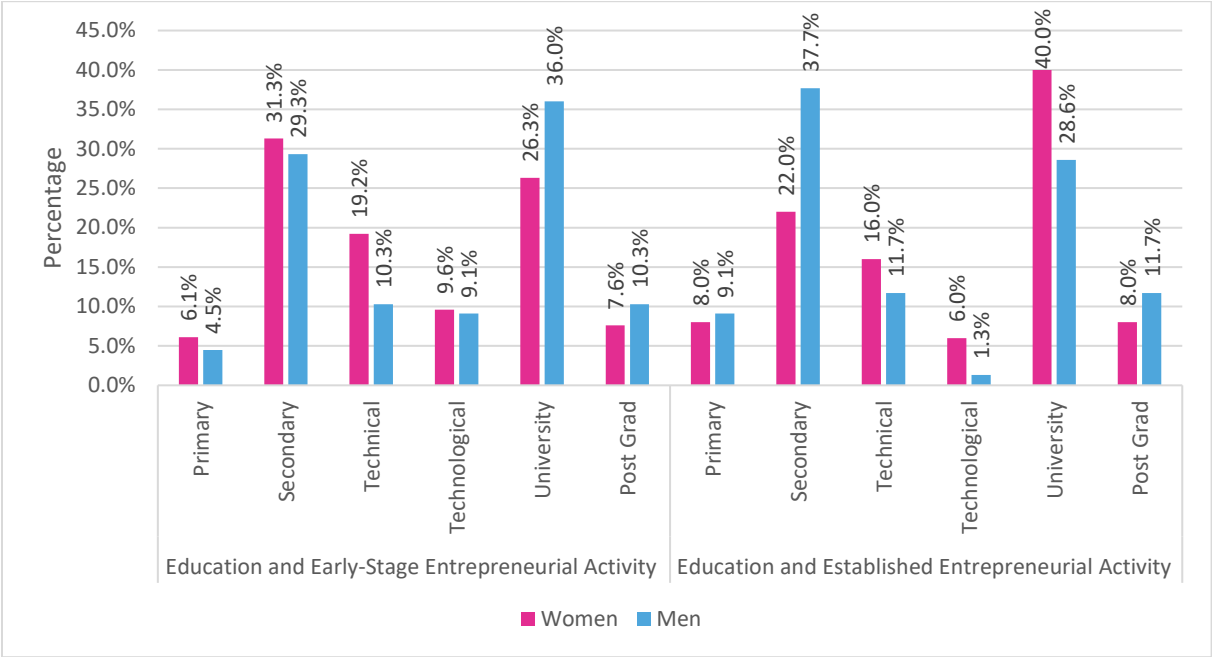

Figure 1: Education Levels and Entrepreneurial Activity in Colombia (GEM, 2018).

In contrast, men with a university education constitute the highest proportion of male entrepreneurs (36 percent) in Colombia's TEA, followed by men with secondary education, who represent 31.3 percent, as Figure 1 shows. The GEM report also notes that women entrepreneurs in established ventures in Colombia are more highly educated than their male counterparts, with 40 percent of women running established ventures holding university degrees compared to 29 percent of men in 2018 (GEM, 2018).

Results and Discussion.

Education and the female participation rate in the labor market

Education and access to the job market are intricately linked in Colombia, with educational attainment significantly impacting employment prospects and income (Mantilla & Rincón, 2022; DANE, 2020). Limited access to high-quality education is a significant barrier to social mobility, the mismatch between skills taught in schools and skills valued by employers further exacerbates high youth unemployment rates and underemployment (Ramírez-Montoya et al., 2021).

Colombia has implemented robust normative measures to protect women's rights and enacted legislation such as the Quota Law, promoting greater representation of women in public institutions. Additionally, the approval of the National Policy on Gender Equality (CONPES 161) in 2013 highlights the government's commitment to coordinate efforts and ensure gender equality and non-discrimination. Women's labor force participation is still relatively lower than that of men. However, there is a generally increasing female participation rate among women, with a 15.1 percent growth from 53.48 percent in 1990 to 61.6 percent in 2019, as Figure 2 reveals.

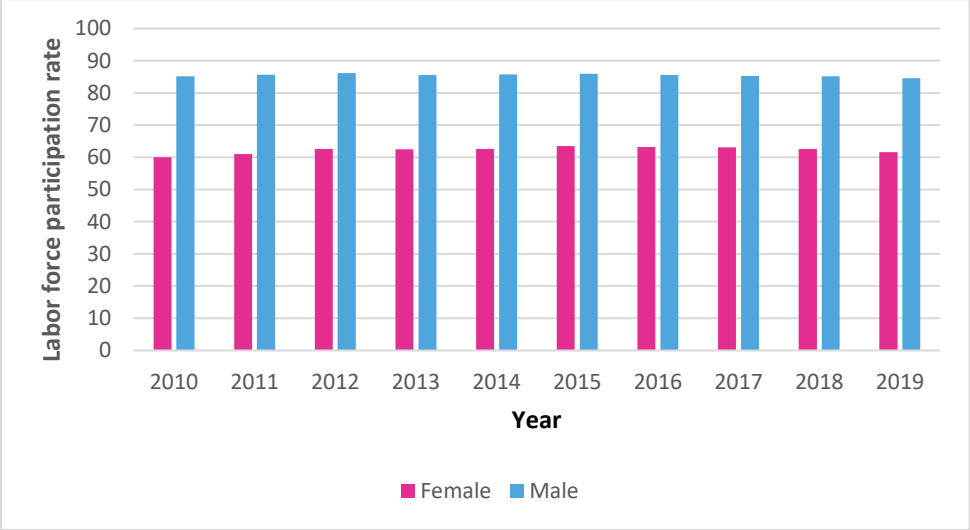

Figure 2: Labor Force Participation Rate (% Of Cohort Population Ages 15-64) (WDI, 2023).

As indicated in Figure 3, educational attainment with at least completed primary among the population aged 25 years and older consistently slightly higher for women than for males with females' rate rising from about 80.0 percent in 2010 to 81.4 percent in 2020.

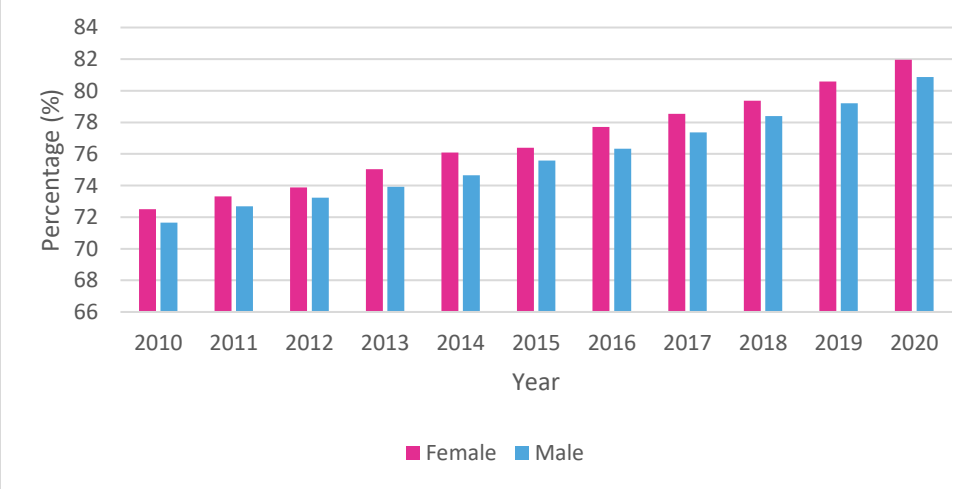

Figure 3: Educational Attainment, At Least Completed Primary, Population 25+ Years
Source: World Bank's World Development Indicators Database (2023).

Educational attainment, at least bachelor's or equivalent, population 25+ years has risen from 9.55 percent in 2012 to 13.54 percent in 2020 among women by about 41.8 percent compared to 28.9 percent among men, as Figure 4 shows.

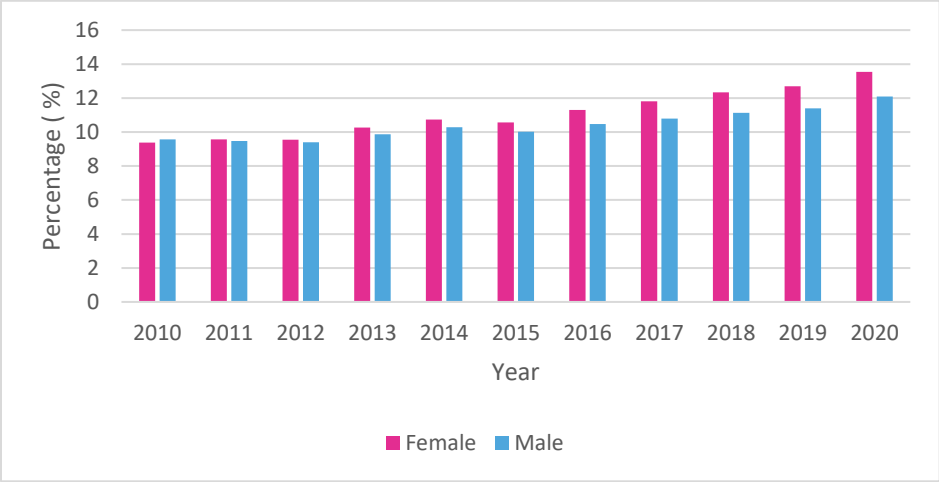

Figure 4: Educational Attainment, At Least Bachelor's or Equivalent, Population 25+ Years
Source: World Bank's World Development Indicators Database (2023).

According to the OECD (2022), female graduates often do better than their male colleagues, particularly three years following the conclusion of the academic program at the bachelor's level. Women often thrive in subjects like education, health, and the humanities, while males typically graduate at greater rates in STEM disciplines like engineering, technology, and natural sciences (UNESCO, n.d.).

Table 1 shows the distribution of new entrants by study fields. Historically, men dominated technical courses such as engineering, while women dominated education and welfare. The most notable improvement is that female enrollment in natural sciences, mathematics, and statistics had the highest growth of 10 percent between 2013 and 2020.

Table 1: Distribution of The Share of New Entrants by Field

	2013		2020		Female
Field	**Female (%)**	**Male (%)**	**Female (%)**	**Male (%)**	**Change (%)**
Education	81	19	25	75	-56
Arts and humanities	46	54	46	54	0
Social sciences, journalism, and information	69	31	65	35	-4
Business, administration, and law	63	37	63	37	0
Natural sciences, mathematics, and statistics	57	43	67	33	10
Information and Communication Technologies (ICTs)	27	73	27	73	0
Engineering, manufacturing, and construction	27	73	28	72	1
Agriculture, forestry, fisheries and veterinary	42	58	46	54	4
Health and welfare	67	33	60	40	-7
Services	42	58	58	42	16

Source: OECD (2023b).

Females have the highest completion rates in business, administration, and law courses, where they outperform men, as Table 2 displays. As indicated in Figure 5, female unemployment rates were historically high from 2007 to 2021 compared to men. As of 2021, female unemployment was 18.2 percent, relatively higher than 10.9 percent among men. Owing to the COVID pandemic, the rates hiked for both sexes in 2020 and 2021.

Table 2: Distribution of The Share of Graduate by Field and Gender

Field	2013		2020		Female Change (%)
	Female (%)	Male (%)	Female (%)	Male (%)	
Arts and humanities	5	5	3	3	-2
Social sciences, journalism, and information	2	1	5	2	3
Business, administration, and law	61	30	53	29	-8
Natural sciences, mathematics, and statistics	1	1	4	2	3
Information and Communication Technologies (ICTs)	5	11	4	13	-1
Engineering, manufacturing, and construction	10	30	13	27	3
Agriculture, forestry, fisheries and veterinary	3	4	3	4	0
Health and welfare	8	3	4	2	-4
Services	6	16	11	17	5

Source: OECD (2023b).

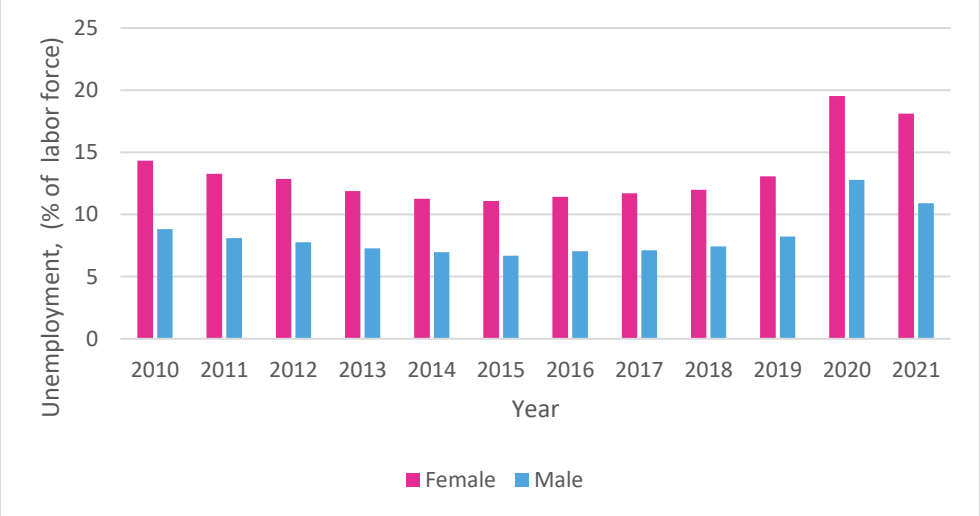

Figure 5: Gender Disparity Trend in Unemployment Rates in Colombia Years
Source: World Bank's World Development Indicators Database (2023).

As shown in Figure 6, the gender wage gap in percentage has been significantly decreased in the period from 2010 to 2021. There was a significant drop in the gender wage gap in percentage from 2019 to 2020 with a relative decrease from 8.94 to 2.75 percent.

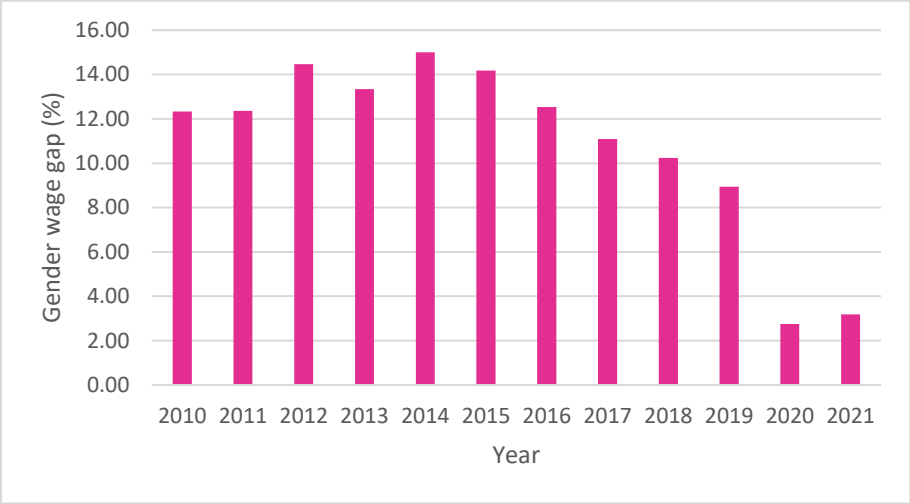

Figure 6: Gender Wage Gap in Colombia (OECD, 2023a).

Labor market disparities between urban and rural areas

Historically, there has been a significant rural-urban educational attainment dichotomy in Colombia. While secondary school enrollment is less clearly delineated in rural Colombia, urban areas (towns and cities) are much better served. The enrollment rates for 11- to 12-year-olds range from 80 percent or less in rural areas to over 80 percent in urban areas, as Figure 7 reveals.

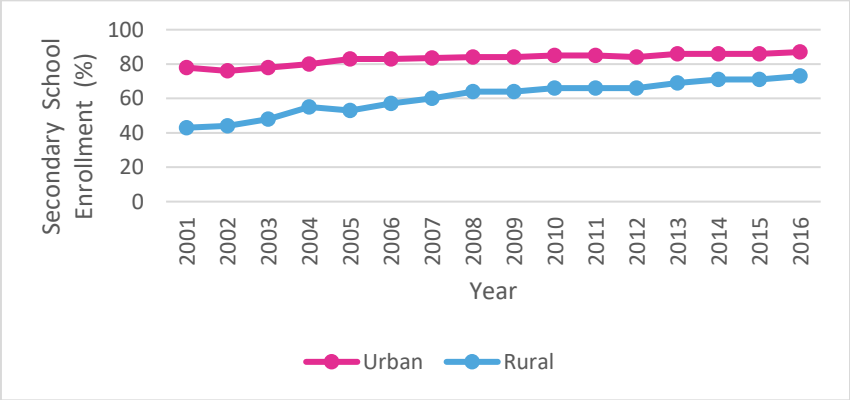

Figure 7: The rural and urban divide, secondary school (Colombia Reports, 2019).

According to the DANE (2019), the Global Participation Rate (GPR) of rural women in 2019 amounted to 39.1 percent, which is 35.9 percentage points lower than the GPR of rural men (75 percent) and 17.6 percentage points lower than the GPR of women in urban areas (56.7 percent).

Not surprisingly, the Great Integrated Household Survey (GEIH) (2019) carried out by the DANE indicated that about 8 percent of the working-age population in rural areas had a formal waged job, much lower than 24 percent in urban areas in 2019. Employment prospects are also higher in urban than rural areas, as shown in Figure 8.

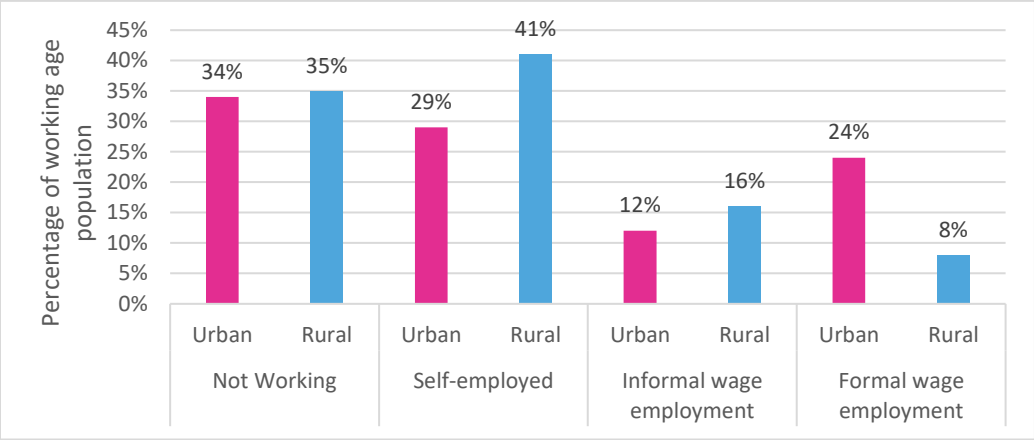

Figure 8: Employment Status by Geography in 2019 (DANE, 2019).

Government Initiatives to Address the Gender Gap

The Gender Disparity Initiative in Colombia, also known as the *Public-Private Initiative to Reduce Gender Economic Gaps in Colombia*, is a program launched by the Inter-American Development Bank (IDB) and the Colombian government in 2017.

The initiative focuses on three main areas: increasing women's labor force participation and quality of employment, improving women's access to financial services and assets, and reducing gender gaps in entrepreneurship and business ownership (IDB, 2017).

One of SENA's initiatives to reduce the gender gap is the program that equips women with technical skills directed to male-dominated areas of economic activity. The SENA initiative aims to promote specialized training for young people to install and maintain electrical networks (SENA, 2021).

It offers them the possibility of receiving nine months of technical instruction, followed by an internship in one of the group's companies. The program has increased the number of female students installing and maintaining electrical networks from 1 to 38 percent (IDB, 2017). The fund has financed various business initiatives nationwide, contributing to the region's job creation and economic growth (Gaviria-Marin et al., 2021).

Table 3: Initiatives Promoting Gender Equality and Economic Empowerment in Colombia

Initiative	Description	Key Achievements
SENA Emprende Rural	Promotes rural entrepreneurship and development in the agricultural sector	Creation of the SENA-FINAGRO Agreement for knowledge transfer in financial education and agricultural credit management. Implementation of Campo a un Clic, a virtual platform for marketing 4.0 targeted at small and medium rural producers. (Mejía Rivera, 2022). Establishment and strengthening of agricultural production units. Formal placements in rural activities with broad coverage for women. Provision of training in the agricultural sector. (Molina, 2022).
Productive Mini-Chains: Mujeres más productivas project	Empowers female shopkeepers impacted by armed conflict by improving productive and commercial capacities	Collaborative initiative implemented by the Ministry of Commerce, Industry, Tourism, and private companies. Individualized instruction to enhance performance and income growth. Benefits women, families, and communities. Contributes to socio-economic development. (Chamber of Commerce, 2023)

In addition to supporting women's entrepreneurship and business development, SENA has prioritized promoting rural entrepreneurship through its program *SENA Emprende Rural*, as described in Table 3. Given the significant agricultural sector in Colombia, this program seeks to enhance income generation, employability, and rural entrepreneurship by developing technical capabilities and strengthening initiatives for rural production (SENA, n.d.). According to the OECD (2022), employment rates grew at an average of 3 percent annually between 2008 and 2018.

The collaboration between the Ministry of Commerce, Industry, and Tourism, Bavaria (Colombia's largest beverage company), and The National Trade Federation (FENALCO) resulted in a private initiative. The initiatives differ in duration and complexity, with Emprende Rural (SER) rated higher in complexity. It started in 2003 and has an indefinite nature, continuously monitored, and evaluated for ongoing improvements (APC Colombia, n.d.). The program aims at supporting women's entrepreneurship in rural areas.

Initiative Rating Assessment

Criteria	Women Entrepreneurship SER (public)	More Productive Women (private)
Initiative Value (Cost)	+	-
Implementation Feasibility	-	+
Scalability (Reach)	+	-
Duration	+	-
Monitoring	+	+
Total Score	4	2

Figure 9: Performance Comparison of public and private initiatives
Source: Ministry of Commerce, industry, and Tourism (2021); SENA Emprende Rural (2023).

Figure 9 evaluates the Women Entrepreneurship (SER) and *Mujeres más Productivas* (More Productive Women) initiatives.

SER focuses on empowering women in rural areas and has shown notable progress and expansion. *Mujeres más Productivas* targets both urban and rural regions, benefiting around 3,000 women. In comparison, the *Emprende Rural* initiative benefits over 4,000 individuals per region annually, primarily women. (SENA, 2022). Furthermore, there are notable cost differences between the initiatives. As previously mentioned, the public initiative (SER) has a higher budget of over 500,000 USD annually, while the More Productive Women initiative has a budget of approximately 110,000 USD for the entire implementation period.

Findings

The article seeks to answer three research questions: (1) How has the educational system impacted women's participation rate in the Colombian labor market? (2) How does the current educational system in urban and rural Colombia compare? (3) How effectively have the government's initiatives addressed the gender gap?

The findings reveal an increasing women's participation rate in the labor market, attributed to rising female educational attainment at the undergraduate and postgraduate levels. Enhancing technical training skills has also positively impacted labor force participation. The National Learning Service (SENA) has played a significant role in empowering women with the suitable skill set for improved employability, mainly through entrepreneurship programs in both rural and urban areas. Collaborations between the Chamber of Commerce, the Colombian government, and various partners have created a supportive environment for women's participation in education and the labor force.

Additionally, encouraging entrepreneurship has become a focus for addressing unemployment rates in both urban and rural settings. The government has introduced support programs, including childcare services, paid daycare, and maternity leaves for working mothers, to facilitate higher female labor force participation (Batyra, 2016a; Batyra, 2016b; Ham et al., 2020).

Hence, women's education and employment in well-paying jobs have contributed to narrowing the gender wage gap in Colombia over time. Rural areas in Colombia show lower formal employment rates than urban areas (DANE, 2020).

Urban areas offer better job opportunities with higher income premiums in productive value-added sectors, while rural areas rely still heavily on agriculture (Carranza et al., 2022). To address this disparity, the government aims to expand value-added sectors to rural areas and create opportunities for technical and non-technical jobs among the rising educated rural population. According to the DANE (2020), while the gender wage gap has reduced significantly, women still experience higher unemployment rates despite having higher educational attainment than men. This discrepancy could be attributed to cultural aspects, accessibility of employment opportunities, and persistently high unemployment rates among women (OECD, 2022).

Conclusion

Increasing female educational levels have augmented labor force participation among women in Colombia. University education level degrees, especially in mathematics, economics, sciences, engineering, business, and professions have equipped females with essential skills that enhance their chances of employment and have also reduced the gender wage gap.

Higher education often results in higher income levels of compensation which serve as attractive recompense for the years spent in educational institutions. The study demonstrates that higher educational attainment among women has increased their female labor force participation rate.

The government has increased gender parity in the workplace through training, mentoring, and support for female-led startups. SENA programs have increased female labor participation in male-dominated sectors, reducing the gender wage gap and enhancing women's participation in the labor market.

While the findings provide valuable insights based on reliable sources, the existing methodological limitations must be acknowledged. The article's findings are derived deductively through observation of data patterns. However, it is essential to employ further statistical tests to determine whether these trends are significant and not simply random occurrences.

Given the nature of time series data, it is also crucial to account for time-related effects in future studies. Statistical tests can help control these effects and provide a more accurate assessment of the relationships being studied. Additionally, future research is required to investigate the mediating role of female labor force participation rates in the relationship between educational attainment and the gender wage gap. This could shed light on the mechanisms through which education influences employment outcomes for women.

There is a possibility of omitted variable bias that may have influenced the narrowing wage gap, such as the impact of labor unions. Future studies could explore these factors to gain a more comprehensive understanding of the dynamics at play.

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