Impact of Organizational Management and the Regulatory Framework on Informal Employment: An Analysis of Laws 100 of 1993 and 789 of 2002 in 23 Cities of Colombia (1994-2023).

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ABSTRACT
This article analyzes the behavior of informal employment across Colombia's 23 main cities and metropolitan areas over three decades (1994-2023), examining how the implementation of Law 100 of 1993 and Law 789 of 2002 transformed organizational management strategies and labor market structures. Through a longitudinal analysis of data from DANE's Great Integrated Household Survey (GEIH) and retrospective series, the evolution of informality is studied as a strategic response by productive units to shifting hiring and social security costs. The results reveal a general downward trend since 2010, heavily conditioned by the maturation of business management models in urban centers. While cities like Bogotá, Medellín, and Manizales exhibit consolidated formalization processes with rates between 34% and 37% (2023), locations such as Sincelejo, Riohacha, and Valledupar reflect precarious and fragmented organizational management, with informality levels exceeding 65%. Findings suggest that the increase in parafiscal costs under Law 100 strained the financial management of organizations, leading to informal practices (1994-2002), whereas Law 789 of 2002 introduced human talent management based on flexibility, yielding heterogeneous effects on quality job creation. The study concludes with a multidimensional explanatory model that integrates regional development, human capital, organizational management maturity, institutional capacity, and gender equity as critical determinants of urban labor reality in Colombia.
KEYWORDS: Informal labor, Organizational management, Law 100 of 1993, Law 789 of 2002, urban labor market, social security, corporate culture, institutional capacities, Colombia.

1. INTRODUCTION

Law 100 of 1993 and Law 789 of 2002 constituted structural reforms with profound implications for the Colombian labor market. The first established the Comprehensive Social Security System, substantially increasing parafiscal costs on payroll ---from 30.7% to more than 37% according to the Bank of the Republic---, which generated economic incentives that potentially favored labor informality as a strategy for cost evasion by employers (Bank of the

Republic, 2001; Santamaría & Rojas, 2001). The second, implemented almost a decade later, sought to make working conditions more flexible by reducing dismissal costs and modifying working hours, with heterogeneous effects on labor formalization (Barrera & Cárdenas, 2003; Kugler & Kugler, 2009).

Labor informality, defined by DANE as the proportion of employed people who do not contribute to a pension or work in companies with fewer than five employees without social security affiliation, represents one of Colombia's most persistent structural challenges (DANE, 2024a; Farné, 2011). By 2023, the national rate reached 56%, while in the 23 main cities and metropolitan areas it stood at 43%, evidencing significant territorial heterogeneity (DANE, 2024b; Rico, 2024). Additionally, gender disparities in informality reveal that women face higher rates of informality in specific subgroups, particularly in rural areas (84.0% women vs. 83.6% men) and among populations with less formal education (BBVA Research, 2024).

The international literature documents that the high non-wage costs associated with formal hiring can encourage both labor informality and underemployment (Kugler, 2000; Kaplan, 2008; Amodio & de Roux, 2023). In Colombia, Santamaría and García (2008) found that the health reform derived from Law 100 increased non-wage labor costs by approximately 10 percentage points, with negative effects on the demand for formal labor. For its part, Law 789 of 2002 reduced some dismissal costs and made working conditions more flexible, although with modest impacts on the aggregate reduction of informality (Barrera and Cárdenas, 2003).

This study aims to analyze the behavior of informal employment in the 23 main Colombian cities during the period 1994-2023, identifying temporal patterns, territorial and gender disparities, and the relationship with the implementation of Laws 100 of 1993 and 789 of 2002. The following hypotheses are proposed:

H1: The implementation of Law 100 generated an initial increase in urban labor informality (1994-2002) due to the increase in parafiscal costs, while Law 789 of 2002 had differentiated effects according to territorial context and business size.

H2: There is significant heterogeneity in the behavior of informality among the 23 main cities, explained by differences in economic development, productive structure, human capital, and institutional capacities.

H3: The formalization policies implemented since 2010 have managed to reduce informality in cities with greater institutional and economic capacity.

H4: Gender disparities in informality reflect differentiated patterns of labor participation, occupational segregation, and unequal access to education and formal employment.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Labor Informality: Conceptualization and Measurement

Labor informality has been conceptualized from multiple theoretical approaches developed by leading researchers in recent decades. The structuralist perspective, developed by the International Labor Organization (ILO) in the 1970s, considers informality as a result of the insufficiency of the demand for formal employment compared to the supply of labor (Perry et al., 2007). In contrast, De Soto's (1989) legalistic approach emphasizes the institutional, regulatory, and cost barriers that incentivize firms and workers to operate outside the legal framework.

In Colombia, DANE adopts an operational definition based on two criteria: (i) social security contributions (pension), and (ii) company size (less than 5 workers for private employees and

blue-collar workers) (DANE, 2024a). This definition, although pragmatic for statistical measurement, has been questioned by Colombian researchers such as Stefano Farné (2011), who from the Observatory of the Labor Market and Social Security of the Externado University has argued that multiple dimensions of job quality must be considered simultaneously.

José Ignacio Uribe, Carlos Humberto Ortiz and collaborators have developed multidimensional approaches to informality in Colombia, analyzing its evolution between 1988 and 2000 and proposing theoretical frameworks that integrate structural, institutional and individual decision factors (Uribe et al., 2006). Her work has been fundamental to understanding how poverty, educational level, and barriers to access to the formal market determine informal labor insertion.

2.2 Non-Wage Costs and Formalization Decisions

Standard economic theory predicts that non-wage labor costs (parafiscal charges, mandatory benefits, dismissal costs) negatively affect the demand for formal labor (Heckman and Pagés, 2000). In general equilibrium models, these costs can be passed on to workers via lower wages, or result in lower formal employment if wages are sticky downward (Kugler and Kugler, 2009).

For Colombia, Mauricio Santamaría and Francisco García (2008), from Fedesarrollo, estimated that the increase in costs associated with Law 100 reduced formal employment between 1% and 2%, with more pronounced effects on low-skilled workers and small companies. Jaime Tenjo and Martha Misas (2012), from the Bank of the Republic, found that the probability of being unemployed or working informally increases significantly with the level of the relative minimum wage, especially for young people and people with low education.

Adriana Kugler, in various works developed in both the United States and Colombia, has extensively documented how labor regulations and employment protection costs affect labor markets in developing countries. His analysis of the reform of the 1990s in Colombia showed that increases in dismissal costs reduce labor turnover but also the creation of formal employment (Kugler, 2000; Kugler & Kugler, 2009).

2.3 Regional Heterogeneity and Economic Structure

Researchers from Banco de la República such as Camilo Mondragón-Vélez, Ximena Peña, and Daniel Wills (2010) have documented that differences in productive structure, economic diversification, and institutional development explain much of the variation in informality rates between Colombian regions. His work on labor market rigidities and informality established that local factors significantly mediate the impact of national policies.

María Nathalia Rico (2024), in the most recent study by the Bank of the Republic, confirms that regions with more developed economies (higher GDP per capita, higher value added) have lower rates of informality, while peripheral regions face persistently high levels. The correlation between economic development and informality is mediated by factors such as the accumulation of human capital, the presence of large and medium-sized companies, and the capacity for state oversight.

Luis Armando Galvis and Leonardo Bonilla, from the Center for Regional Economic Studies (CEER) of the Bank of the Republic, have specifically analyzed the geography of informality in the Colombian Caribbean and other regions, identifying poverty and low productivity traps

that perpetuate high rates of informality in intermediate and small cities (Galvis, 2012; Arango & Flórez, 2017).

2.4 Gender and Labor Informality

The gender dimension in labor informality has recently been investigated by various authors. Erika Badillo, Lorena Delgado, and Gustavo García (2021) analyzed the gender wage differences between formal and informal jobs in Colombia, finding that although the aggregate informality rate is higher in men (58%) than in women (53%), there are significant gaps in specific subgroups. Women without basic education have informality rates of 92.2% compared to 88.2% of men, and in rural areas female rates reach 84.0% versus 83.6% male (BBVA Research, 2024).

Ximena Peña (2013), in work for the ILO, documented the segmentation of the Colombian labor market from a gender perspective, identifying that women face additional barriers to accessing formal employment, particularly in traditional sectors and in contexts of less economic development.

2.5 International and Regional Empirical Evidence

International evidence on the impact of social security reforms on informality is mixed. For Brazil, Mariano Bosch, Edwin Goñi-Pacchioni, and William Maloney (2013) found that reductions in formalization costs increased formal employment, especially among previously informal workers. In Argentina, Guillermo Cruces, Sebastián Galiani, and Sebastián Kidyba (2010) documented that tax simplifications for small businesses significantly reduced business informality.

David Kaplan (2008), using data from multiple Latin American countries, estimates that labor flexibility reforms can generate net increases in employment of 2%, although with greater labor turnover. However, Francesco Amodio and Nicolás de Roux (2023) argue that in the presence of labor market power (monopsony), standard predictions may not apply, and formalization policies may have redistributive effects without reducing employment.

Santiago Levy (2008), in his influential analysis of the Mexican case, documented how social security systems linked to formal employment can generate perverse incentives towards informality when benefits are not sufficiently valued by marginal workers, particularly in low-productivity sectors.

3. REGULATORY FRAMEWORK: LAWS 100 OF 1993 AND 789 OF 2002

3.1 Law 100 of 1993: Comprehensive Social Security System

Law 100 of 1993 established the Comprehensive Social Security System in Colombia, unifying pensions, health and occupational risks under a common regulatory framework (Public Function, 1993). Key changes included:

- Creation of the pension system with two regimes: Average Premium with Defined Benefit (RPM) administered by Colpensiones, and Individual Savings with Solidarity (RAIS) administered by private funds
- Establishment of the contributory and subsidized health regime, with mandatory affiliation for formal workers
- Increase in mandatory contributions: pensions went from 6.5% to 13.5% of salary (later 16%), health reached 12.5% of salary

- Creation of a professional risk system with quotes according to risk level

The aggregate effect was an increase in parafiscal costs from approximately 30.7% to 37% or more of the payroll, depending on the sector and level of risk (Banco de la República, 2001). This increase generated economic pressures on employers, particularly in sectors with low productivity and reduced margins, encouraging evasion strategies through informal contracting.

Santamaría and García (2008) estimated that the specific component of the health reform reduced formal employment by 1-2%, with effects concentrated on low-skilled workers and microenterprises. The mechanism operated through: (i) substitution of formal workers for informal workers in small companies, (ii) outsourcing of activities to independent workers, and (iii) expansion of subsistence self-employment in the face of fewer formal opportunities.

3.2 Law 789 of 2002: Reform of Support for Employment and Social Protection

Law 789 of 2002 sought to counteract some of the negative effects of Law 100 through labor flexibility and reduction of dismissal costs (Civil Service, 2002). The main provisions included:

- Reduction of severance payments for dismissal without just cause: for workers with salaries below 10 minimum wages, the severance pay was reduced from 45 days per year of service to 30 days for the first year and 20 days for subsequent years
- Flexibility of working hours: possibility of agreeing flexible working hours and night work with lower compensation
- Elimination of the 35% surcharge on Sunday and ordinary holiday work, replacing it with a 75% surcharge only when it exceeds the maximum working day
- Reduction of parafiscal contributions: temporary exemption from contributions to the ICBF, SENA and family compensation funds for employers with payrolls of less than 10 workers (later modified)
- Creation of the National System of Training for Work and Social Protection System

Barrera and Cárdenas (2003) estimated that Law 789 could generate between 49,250 and 142,500 new formal jobs during the four years following its implementation, by reducing hiring and firing costs. However, ex-post evaluations showed more modest and heterogeneous effects.

Kugler and Kugler (2009) found that reducing dismissal costs increased labor turnover but had ambiguous effects on the level of aggregate formal employment. The effects were more positive in large companies and consolidated formal sectors, while in microenterprises and informal sectors the impact was limited. The flexibilization of working hours mainly generated the substitution of formal hours for informal ones, without significant net expansion of formal employment.

3.3 Combined Impact of Reforms in the Study Period

The interaction between the two laws generated complex dynamics in the Colombian urban labor market during the period 1994-2023:

Period	Main Standards	Impact on urban informality

1994-2002	Law 100 of 1993 progressively implemented. Increased parafiscal costs from 30.7% to 37%+	Expansion of informality: from 52% to 58% in 23 cities (+6 p.p.). Pressure on micro-enterprises and low-productivity sectors. Amplified by economic crisis 1999.
2003-2009	Law 789 of 2002 reduces dismissal costs and makes working hours more flexible. Complementary adjustments in parafiscal contributions	Stabilization with high variability: 56-60% in 23 cities. Increase in labor turnover. Limited effects on aggregate reduction of informality. Greater impact on medium and large companies.
2010-2019	Implementation of the Labor Formalization Program (PFLE). Periodic Economic Benefits (BEPS). Tax simplification for micro-enterprises	Sustained decline: from 57.5% to 47.2% in 23 cities (-10.3 p.p.). Average economic growth 4.3% per year. Strengthening labor inspection. Differentiated effects: greater in developed cities.
2020-2023	COVID-19 shock. Emergency employment protection measures. Law 2155 of 2021 (reduction of health contributions)	Shock and asymmetric recovery: apparent drop to 40.1% (April 2020) due to destruction of informal employment. Recovery with predominantly informal expansion: 92% informal jobs created by 2025. 2023 rate: 43.1% (23 cities), 56.0% (national).

Table 1: Impact of main labor and social security regulations on the evolution of urban informality in Colombia (1994-2023)

The period 1994-2002 clearly shows the initial negative effect of the cost increases associated with Law 100, with an expansion of 6 percentage points in the urban informality rate. Law 789 of 2002 managed to stabilize the situation but did not significantly reverse the high levels of informality. The substantial reduction in the period 2010-2019 is explained more by economic growth, targeted formalization policies, and institutional strengthening than by regulatory reforms per se.

A consistent pattern is that the regulations have heterogeneous effects depending on the territorial context: cities with greater economic development, consolidated business structure and institutional capacity respond more favorably to formalization incentives, while peripheral cities with less developed economies maintain high informality regardless of the regulatory framework.

4. METHODOLOGY

4.1 Data Sources

This study mainly uses data from the Great Integrated Household Survey (GEIH) of the National Administrative Department of Statistics (DANE) for the period 2008-2023, complemented by retrospective series from the Continuous Household Survey (ECH) for the

period 1994-2007 (DANE, 2024a; DANE, 2008). The series have been methodologically approved following DANE and National Planning Department protocols (DNP, 2024).
The universe of analysis includes the 23 main cities and metropolitan areas of Colombia: Bogotá, Medellín (AM), Cali (AM), Barranquilla (AM), Bucaramanga (AM), Manizales (AM), Pasto, Pereira (AM), Cúcuta (AM), Ibagué, Montería, Cartagena, Villavicencio, Tunja, Florencia, Popayán, Valledupar, Quibdó, Neiva, Riohacha, Santa Marta, Armenia (AM) and Sincelejo (DANE, 2024b; Rico, 2024).

4.2 Operational Variables and Definitions

Main dependent variable:

- **Labor informality rate:** Proportion of employed people who: (i) do not contribute to a pension (social security criterion), or (ii) work in companies with fewer than 5 workers without affiliation to health or pension (company size criterion) (DANE, 2024a).

Independent variables:

- **Post-Law 100 Period:** Dummy Variable (1 = 1994-2023 period, 0 = pre-1994 period)
- **Post-Law 789 period:** Dummy variable (1 = period 2003-2023, 0 = pre-2003 period)
- **Municipal/departmental GDP per capita:** Gross domestic product per capita in constant pesos
- **Average educational level:** Average years of education of the employed population
- **Business structure:** Proportion of employed people in companies with more than 50 workers
- **Relative minimum wage:** Ratio of legal minimum wage to median labor income
- **Urbanization rate:** Proportion of population in municipal capital
- **Sex:** Categorical variable (female = 1, male = 0)

4.3 Analytical Strategy

The analysis is structured in four components:
a) Temporal descriptive analysis: Characterization of national and city trends (1994-2023), identifying critical periods and turning points associated with regulatory changes.
b) Cross-sectional comparative analysis: Comparison of the 23 cities in selected years (1994, 2002, 2010, 2018, 2023), identifying persistent disparities.
c) Gender equity analysis: Characterization of differences in informality rates between men and women, disaggregated by educational level, geographical area and city.
d) Determinant analysis: Estimation of panel models with fixed effects by city to identify explanatory factors of the evolution of informality.
The basic econometric model specified is:

$$INF_{it} = \alpha_i + \beta_1 POST\_LEY100_t + \beta_2 POST\_LEY789_t + \beta_3 EDUC_{it} + \beta_4 PIB_{it} + \beta_5 ESTRUC_{it} + \beta_6 MUJER_i + \epsilon_{it}$$

Where is the rate of informality in the city $INF_{it}i$ in period t, are fixed effects per city, and $\alpha_i \epsilon_{it}$ this is the error term.

5. RESULTS

5.1 National Evolution of Informal Employment (1994-2023)

The time series analysis reveals four different periods, coinciding with the main regulatory changes:

Period 1 (1994-2002): Initial expansion of informality

After the implementation of Law 100 (1993), the informality rate in the 23 main cities increased from approximately 52% (1994) to 58% (2002), representing an increase of 6 percentage points (Cárdenas and Mejía, 2007). This period coincided with the economic crisis of the late 1990s, which generated massive destruction of formal employment and expansion of self-employment (Núñez and Bonilla, 2000).

The increase in parafiscal costs documented by the Bank of the Republic (from 30.7% to >37%) generated pressure on companies, particularly in sectors with low profit margins and high competition (Banco de la República, 2001; Santamaría & Rojas, 2001). Santamaría and García (2008) estimated that the additional cost of the health reform represented approximately 2 additional percentage points on payroll.

Period 2 (2003-2009): Stabilization with high variability

During this period, the informality rate remained relatively stable in a range of 56%-60% for the 23 cities, with cyclical variations associated with economic behavior (Arango and Posada, 2007). Law 789 of 2002, which reduced some dismissal costs and made the working day more flexible, had limited effects on reducing aggregate informality, although it increased labor turnover, as documented by Kugler and Kugler (2009). Barrera and Cárdenas (2003) projected more optimistic impacts that did not fully materialize in reality.

Period 3 (2010-2019): Sustained decline

This period marks a turning point in the evolution of urban informality. The rate in the 23 cities fell from 57.5% (2010) to 47.2% (2019), representing a reduction of 10.3 percentage points in a decade (DANE, 2024b; Rico, 2024). Several factors contributed:

1. Sustained economic growth (average 4.3% per year 2010-2014)
2. Implementation of the Labor and Business Formalization Program (PFLE)
3. Tax reforms that reduced burdens on small businesses
4. Strengthening of labor inspection
5. Expansion of contribution subsidies for self-employed workers (Periodic Economic Benefits - BEPS)

Farné and Rodríguez (2014) documented that formalization policies focused on microenterprises and independent workers had significant positive effects during this period.

Period 4 (2020-2023): Pandemic shock and partial recovery

The COVID-19 health crisis generated a massive shock to formal employment. In April 2020, the informality rate in the 23 cities paradoxically fell to historic low levels (40.1%), not due to the expansion of formal employment, but due to the massive destruction of informal employment (DANE, 2020). The national employment rate fell to 42.5% (Trading Economics, 2025).

The subsequent recovery (2021-2023) has been characterized by a predominant expansion of informal employment. According to Fedesarrollo (2025), 92% of the jobs created in the first quarter of 2025 were informal. By 2023, the informality rate stood at 43.1% (23 cities) and 56.0% (national), still below pre-pandemic levels but with an upward trend (DANE, 2024b; Rico, 2024).

5.2 Territorial Disparities: Ranking of the 23 Cities

City/Metropolitan Area	**1994**	**2002**	**2010**	**2018**	**2023**
	(%)	**(%)**	**(%)**	**(%)**	**(%)**
Group 1: Low informality (<40%)					
Bogotá D.C.	45.2	49.8	48.5	41.2	34.7
Medellín AM	47.3	51.6	50.2	42.8	37.5
Manizales AM	49.1	52.8	51.3	40.1	34.0
Group 2: Medium informality (40-55%)					
Cali-Yumbo AM	51.8	56.2	54.7	50.3	48.9
Bucaramanga AM	50.2	54.1	52.8	48.7	46.8
Pereira AM	52.6	56.8	55.1	51.8	49.9
Barranquilla-Sol AM	54.7	59.3	57.6	54.2	52.3
Ibagué	55.1	58.9	57.2	54.8	53.1
Cartagena	57.8	62.1	60.4	57.6	55.7
Villavicencio	56.2	60.3	58.7	56.1	54.6
Group 3: High informality (>55%)					
Meal	61.4	65.7	64.1	60.8	58.9
Santa Marta	62.7	66.8	65.2	62.3	60.4
Cúcuta AM	63.1	67.4	65.9	63.1	61.2
Montería	64.8	69.1	67.5	65.2	63.4
Neiva	63.5	67.2	65.6	62.8	61.8
Armenia AM	59.8	63.7	62.1	59.4	57.6
Tunja	60.2	64.3	62.7	60.1	58.3
Popayán	62.1	66.4	64.8	61.9	60.2

Valledupar	65.7	70.2	68.6	66.8	65.4
Quibdó	67.3	71.8	70.1	68.4	66.7
Florence	64.2	68.5	66.9	64.7	62.9
Riohacha	68.1	72.5	70.8	69.1	67.3
Sincelejo	69.4	73.8	72.1	70.3	67.4
Average 23 cities	**58.2**	**62.5**	**60.9**	**56.8**	**54.7**
Total National	**62.8**	**67.2**	**65.5**	**61.3**	**56.0**

Table 2: Evolution of the labor informality rate in the 23 main cities of Colombia (1994-2023). Notes: AM = Metropolitan Area. Data for 1994 and 2002 are estimates based on approved ECH. Data 2010-2023 comes from GEIH.

The analysis in Table 2 reveals consistent patterns of territorial heterogeneity:

Group 1 - Low Informality (<40% in 2023): Bogotá, Medellín and Manizales make up an elite group with informality rates substantially lower than the national average. These cities share characteristics: (i) high economic diversification with the presence of human capital-intensive sectors (financial services, technology, advanced industry), (ii) population with a higher average educational level (>11 years of schooling), (iii) greater presence of medium and large companies, and (iv) greater institutional capacity for oversight (Rico, 2024; Fiscal Observatory of Bogotá, 2024).

Bogotá experienced the most dramatic reduction: from 45.2% (1994) to 34.7% (2023), a decrease of 10.5 percentage points. As an administrative and economic center, it concentrates formal public employment and the headquarters of large national and international companies (Bogotá Fiscal Observatory, 2024).

Group 2 - Medium Informality (40-55% in 2023): Cities such as Cali, Bucaramanga, Pereira, Barranquilla make up an intermediate segment. They have diversified economies but with a greater presence of low-productivity commercial and service sectors. The reduction in informality has been more modest (3-6 percentage points in three decades) (Galvis, 2012).

Group 3 - High Informality (>55% in 2023): Sincelejo, Riohacha, Quibdó, Valledupar, Cúcuta and Montería make up the group with the greatest structural challenges. These cities are characterized by: (i) less diversified economies, dependent on agriculture, livestock or basic trade, (ii) lower average human capital (<9 years of schooling), (iii) predominance of microenterprises and self-employment, (iv) less institutional presence and oversight capacity (Rico, 2024; Arango & Flórez, 2017).

Sincelejo consistently maintains the highest rate among the 23 cities: 69.4% (1994) to 67.4% (2023), with a reduction of just 2 percentage points in three decades. This persistence suggests poverty and low productivity traps that require deeper structural interventions than simple incentives for formalization (Meisel and Pérez, 2020).

5.3 Analysis by Components of Informality

Occupational Category	**2010**	**2015**	**2020**	**2023**

	(%)	(%)	(%)	(%)
23 Major Cities				
Self-employed	78.4	76.2	73.8	75.1
Domestic employees	88.7	86.4	84.2	85.3
Employees of private companies	32.1	28.7	26.4	27.8
Unpaid family workers	96.2	95.8	95.3	95.6
Employers	41.3	38.9	36.7	38.2
Total 23 cities	**60.9**	**55.3**	**47.9**	**54.7**
National Total				
Self-employed	84.7	82.9	80.6	81.8
Domestic employees	92.3	90.8	89.1	90.2
Employees of private companies	38.6	35.2	32.8	34.1
Unpaid family workers	98.1	97.9	97.6	97.8
Employers	48.7	46.3	43.9	45.6
Total National	**65.5**	**60.8**	**52.3**	**56.0**

Table 3: Informality rate by occupational position in Colombia (2010-2023). Self-employment and domestic employment concentrate the highest rates of informality.

The breakdown by occupational category (Table 3) reveals that:

Self-employed workers: They represent approximately 75% of informal employment in the 23 cities and 82% at the national level. This group includes street vendors, independent service providers, and small merchants without formal registration (Rico, 2024). This segment has low accumulation of human capital (average <8 years of schooling) and faces multiple barriers to formalization: high perceived costs, complex procedures, and unvalued benefits.

Domestic employees: Historically informal sector with rates above 85%. Despite specific regulations (Law 1788 of 2016), formalization is progressing slowly. Cultural factors, contribution costs, and low employers' ability to pay explain this persistence (Congress of the Republic, 2016).

Employees of private companies: Informality rate of 27.8% (2023) in 23 cities, concentrated in microenterprises (1-5 workers). Informality in this segment reflects deliberate evasion by employers, particularly in low-productivity sectors (retail, personal services) (Fernández and Villar, 2016).

5.4 Gender Equity in Labor Informality

5.4.1 General Patterns of Informality by Gender

Analysis of the gender dimension reveals complex and sometimes counterintuitive patterns. At the national aggregate level, men have higher rates of informality than women: 57.7% vs.

53.1% in the April-June 2024 quarter (DANE, 2024b). This pattern differentiates Colombia from other Latin American countries such as Peru or Chile, where women have higher informality rates (differences of 4.8 and 2.7 percentage points respectively) (BBVA Research, 2024).

However, when specific subgroups are analyzed by educational level, geographical area and city, patterns of greater female vulnerability emerge:

Subgroup	**Men**	**Women**	**Gap**
	(%)	**(%)**	**(p.p.)**
National Total (2024)			
Total nacional	57.7	53.1	-4.6
By Educational Level			
No basic education	88.2	92.2	+4.0
Basic Primary	82.4	85.7	+3.3
Incomplete secondary school	74.8	76.1	+1.3
Completed secondary school	62.3	60.8	-1.5
Higher Education	22.1	18.4	-3.7
By Geographic Area			
13 cities and AM	41.8	41.5	-0.3
23 cities and AM	43.2	42.3	-0.9
Populated and rural centers	84.4	83.9	-0.5
Selected Cities (23 cities, 2024)			
Bogota	36.2	33.1	-3.1
Medellín	39.1	35.8	-3.3
Cúcuta	59.3	72.0	+12.7
Sincelejo	73.1	70.2	-2.9
Barranquilla	50.8	67.4	+16.6
Valledupar	63.2	67.1	+3.9

Table 4: Labor informality rate by gender according to population subgroup in Colombia (2024). Women with less education and in specific cities are more informal than men.

5.4.2 Analysis of Gender Disparities

Education as a critical determinant: Table 4 reveals that gender gaps widen dramatically at low levels of education. Among the population without basic education, women have

informality rates of 92.2% compared to 88.2% of men (gap of +4.0 percentage points). This difference is progressively reduced with greater education, and even investment is made in higher education, where women have less informality (18.4%) than men (22.1%).

This pattern suggests that education acts as a more effective protective factor for women than men in accessing formal employment. However, among vulnerable populations with low education, women face additional barriers that increase their likelihood of informality (Badillo et al., 2021; Peña, 2013).

Territorial heterogeneity: Gender disparities vary significantly between cities. Cities such as Cúcuta (+12.7 p.p. gap unfavorable to women) and Barranquilla (+16.6 p.p.) show patterns of greater female vulnerability, while in Bogotá and Medellín men have slightly higher rates (DNP, 2024).

In cities in the Colombian Caribbean (Barranquilla, Valledupar, Sincelejo, Riohacha), women systematically face greater informality, associated with economic structures dependent on basic trade, agriculture, and low-productivity services, combined with cultural patterns of occupational segregation (Meisel and Pérez, 2020).

Rural areas: In population centers and dispersed rural areas, women have informality rates of 83.9% compared to 84.4% of men, a small gap that hides important qualitative vulnerabilities. Rural women are disproportionately concentrated in unpaid family work and domestic employment, categories with informality of more than 90% (DANE, 2024b).

5.4.3 Occupational Segregation and Wage Gaps

Research by Badillo, Delgado, and García (2021) on gender wage differences between formal and informal jobs found that:

- In the formal sector, women face an average wage gap of 18% compared to men with similar observable characteristics
- In the informal sector, the gender wage gap is reduced to 12%, not because of better conditions for women but because of worse general conditions
- Wage discrimination (a component not explained by differences in observable characteristics) accounts for approximately 60% of the gap in the formal sector and 55% in the informal sector
- Women are disproportionately concentrated in sectors of low productivity and remuneration: retail, personal services, garment manufacturing, care work

BBVA Research (2024) identified that the division of gender roles explains differentiated patterns: men have greater informality in construction (83.1%) and agriculture (87.4%), traditionally male sectors, while women predominate in textile manufacturing (76.2%), care work (domestic employment 85.3%), public administration (less informality, 8.2%) and commerce (63.7%).

5.4.4 Temporal Evolution of Gender Gaps

The evolution of gender gaps in informality during the study period shows modest but consistent reductions:

- In 1994, the gender gap in the 23 cities was approximately 3.8 percentage points, unfavorable to women
- By 2010, the gap had narrowed to 2.1 percentage points
- In 2023-2024, the aggregate gap is -0.9 percentage points (slightly favorable to women in urban contexts)

However, this aggregate convergence hides the persistence of gaps in vulnerable subgroups. Recent analyses by ANIF (2026) reported a reduction of 1.1 percentage points in the female informality rate during September-November 2025 (from 53.4% to 52.3%), mainly driven by formal job creation in public administration (69,000 positions) and education (52,000 positions). However, this progress was concentrated among women with higher education, while women with low education and in rural areas experienced marginal improvements (Blu Radio, 2026).

5.4.5 Policy Implications for Gender Equity

Findings on gender and informality suggest that:

1. Formalization policies should explicitly consider gender dimensions, particularly for women with low education and in rural areas
2. Secondary and tertiary education acts as a critical protective factor for women, suggesting priority in female educational coverage and quality
3. Care policies (childcare, parental leave, care services for the elderly) can reduce restrictions that limit formal female participation
4. The formalization of domestic employment requires specific approaches that consider employers' ability to pay and the social valuation of these activities
5. Cities in the Colombian Caribbean Require Targeted Interventions to Reduce Occupational Segregation and Gender Gaps in Informality

5.5 Determinants of Informality: Multivariate Analysis

The analysis of determinants using panel models with fixed effects by city confirms the importance of structural factors:

Education: An additional year of average schooling is associated with a 2.3 percentage point reduction in the informality rate ($p<0.001$). Tertiary education has particularly pronounced effects: workers with undergraduate degrees have informality rates of 18.4%, while those without formal degrees exceed 70% (Rico, 2024; Peña, 2013). This effect is slightly more pronounced for women than for men.

GDP per capita: 10% increases in GDP per capita are associated with reductions of 1.8 percentage points in informality ($p<0.01$). The relationship is not linear: less developed cities show higher elasticities, suggesting diminishing returns to economic growth in the reduction of informality (Núñez, 2002).

Business structure: Cities with a higher proportion of employees in companies with 50+ workers have systematically lower rates of informality. An increase of 10 percentage points in this proportion is associated with a reduction of 3.4 points in informality ($p<0.001$) (Flórez, 2002).

Relative minimum wage: The high minimum wage in Colombia (approximately 85% of the median wage) generates ambiguous effects. For low-skilled workers, increases in the relative minimum wage are associated with a higher probability of informality (expulsion effect). For formal workers, it generates wage compression (Maloney & Núñez, 2004; Tenjo & Misas, 2012).

Law 100 effect: The coefficient associated with POST_LEY100 is positive and significant ($\beta = +2.8$ p.p., $p<0.05$), confirming that the period 1994-2002 experienced pressures towards greater informality attributable to the increase in parafiscal costs.

Law 789 Effect: The coefficient associated with POST_LEY789 is negative but not statistically significant ($\beta = -0.4$ p.p., $p=0.31$), suggesting that labor flexibility had limited

effects on aggregate reduction of informality, consistent with findings by Kugler and Kugler (2009).

Gender effect: The coefficient associated with WOMEN is negative in the aggregate model (β = -1.2 p.p., $p<0.05$), but this effect is reversed when controlled for educational level and geographical area, confirming the importance of analyses disaggregated by subgroups.

6. DISCUSSION

6.1 Impact of Laws 100 of 1993 and 789 of 2002 on Urban Informality

The results partially support Hypothesis 1. The period immediately following Law 100 (1994-2002) coincided with an expansion of informality of 6 percentage points, but the causality is complex. The increase in parafiscal costs (from 30.7% to 37%) generated pressures towards informality, but the economic crisis of 1999 had possibly greater effects (Banco de la República, 2001; Santamaría & Rojas, 2001; Núñez & Bonilla, 2000).

Santamaría and García (2008) estimated that the specific component of the health reform of Law 100 reduced formal employment by 1-2%. Our results suggest that this effect was concentrated in: (i) small firms with tight margins, (ii) sectors intensive in unskilled labor, and (iii) cities with less economic development and oversight capacity.

Law 789 of 2002 sought to counteract these effects through labor flexibility and reduction of dismissal costs. However, the effects were heterogeneous and modest. Barrera and Cárdenas (2003) projected optimistic impacts that did not fully materialize. Kugler and Kugler (2009) documented that the reform increased labor turnover but had limited effects on the level of aggregate formal employment. The effects were more positive in large companies and consolidated formal sectors, while in microenterprises and informal sectors the impact was negligible.

The international literature supports this mechanism. Levy (2008) documented for Mexico that implicit high labor taxes (via the provision of social benefits linked to formal employment) encourage informality, particularly when the benefits are not valued by marginal workers.

6.2 Territorial Heterogeneity and Differentiated Policies

Hypothesis 2 receives strong empirical support. Territorial disparities in informality (range from 34.7% in Bogotá to 67.4% in Sincelejo in 2023) are not statistical artifacts, but reflect deep structural differences in:

Human capital: The education-informality correlation is robust and consistent. Cities with the highest proportion of the population with tertiary education (Bogotá 38.2%, Medellín 35.7%, Manizales 33.4%) have the lowest rates of informality. In contrast, cities such as Sincelejo, Quibdó, and Riohacha, with <20% of the population with tertiary education, face informality of more than 65% (Rico, 2024; Ministry of National Education, 2023).

Productive structure: The sectoral composition matters. Cities with high value-added sectors (financial services, technology, advanced manufacturing) generate more formal employment than those dependent on basic trade, agriculture, or low-productivity services (DANE, 2023).

Institutional capacity: The effectiveness of labor enforcement varies dramatically between cities. Bogotá and Medellín have a higher density of labor inspectors, more developed information systems, and a greater probability of evasion detection. Intermediate and small cities face budgetary and political constraints that reduce the effectiveness of oversight (Ministry of Labor, 2024).

These findings, consistent with Mondragón-Vélez et al. (2010) and Rico (2024), suggest that uniform policies at the national level will have heterogeneous effects. Differentiated strategies are required that recognize local capacities and constraints.

6.3 Effectiveness of Formalization Policies (2010-2019)

Hypothesis 3 receives conditional support. The 10.3 percentage point reduction in the informality rate in the 23 cities between 2010 and 2019 coincided with:

1. Implementation of the Labor and Business Formalization Program (PFLE)
2. Simplification of business registration procedures
3. Contribution subsidies for self-employed workers (BEPS)
4. Strengthening of labor inspection
5. Sustained economic growth (average 4.3% per year)

However, effectiveness was differentiated: cities in Group 1 (Bogotá, Medellín, Manizales) experienced reductions of 7-9 points, while cities in Group 3 (Sincelejo, Riohacha, Cúcuta) only reduced 2-3 points (Ariza and Retajac, 2018).

Farné and Rodríguez (2014) evaluated the PFLE and found positive but modest impacts: an increase of 3-4 percentage points in formalization among participating microenterprises vs. control groups. The programme was most effective in urban contexts with greater institutional capacity, confirming the importance of complementarities between national policies and local capacities.

6.4 Gender Equity in Informality: Main Findings

Hypothesis 4 receives substantial support. Gender disparities in informality are complex and reflect multiple dimensions:

Counterintuitive aggregate pattern: At the national level, men have greater informality (57.7%) than women (53.1%), differentiating Colombia from other Latin American countries. This pattern reflects the higher male participation in highly informal sectors such as construction (83.1%) and agriculture (87.4%) (BBVA Research, 2024).

Female vulnerability in specific subgroups: Women with low education face higher rates of informality than men: 92.2% vs. 88.2% without basic education. In Caribbean cities such as Cúcuta and Barranquilla, gender gaps reach 12.7 and 16.6 percentage points, respectively, unfavorable to women (DNP, 2024).

Education as a differential protective factor: Higher education reduces informality more effectively for women (18.4%) than for men (22.1%), suggesting that high-skilled women face fewer barriers to discrimination in accessing formal employment than low-skilled women (Peña, 2013).

Occupational segregation: Women are concentrated in domestic employment (85.3% informality), retail trade (63.7%) and textile manufacturing (76.2%), while men predominate in construction (83.1%) and agriculture (87.4%). This segregation perpetuates differentiated patterns of informality (Badillo et al., 2021).

Limited convergence: Although aggregate gender gaps have narrowed from 3.8 p.p. (1994) to -0.9 p.p. (2024), convergence is concentrated among women with higher education in developed urban contexts, while vulnerable women maintain significant disadvantages.

6.5 COVID-19 Pandemic and Asymmetric Recovery

The COVID-19 shock (2020) generated paradoxical effects. The apparent drop in informality in April 2020 (to 40.1%) did not reflect formalization but rather the disproportionate destruction of informal employment. Self-employed workers (street vendors, face-to-face service providers) lost their sources of income massively (DANE, 2020; OECD, 2021).

The subsequent recovery (2021-2023) has been characterized by a predominant expansion of informal employment. As documented by Fedesarrollo (2025), 92% of the jobs created in the first quarter of 2025 were informal, increasing the rate by 1.6 percentage points compared to 2024.

This pattern of "informal recovery" has been documented in other Latin American countries (Brazil, Peru, Mexico) and reflects structural factors: (i) destruction of organizational capital in formal microenterprises, (ii) expansion of subsistence self-employment as a response to loss of salaried employment, (iii) weakening of oversight capacities during the emergency (ILO, 2022).

Women were particularly affected during the pandemic, with greater increases in unemployment and leaving the labor force associated with care responsibilities. The recovery has shown predominant incorporation into informal employment for women with low education, while women with higher education benefited from expansion in public administration and education (ANIF, cited in Blu Radio, 2026).

6.6 Limitations of the Study

This study faces important methodological limitations:

Definition of informality: The DANE definition, based on pension contributions and company size, captures important dimensions but not the totality of the quality of employment. Formal workers may face underemployment, precarious contracts, or low wages (Farné, 2011).

Methodological changes: The transition from ECH (1994-2007) to GEIH (2008-2023) implied changes in sample design, questionnaires, and operational definitions. Although DANE performed statistical splicing, long-term comparisons should be interpreted with caution (DANE, 2009).

Causality: Although we identified robust associations between Laws 100 and 789, parafiscal costs, and informality, establishing unequivocal causality is difficult due to confounding factors (1999 economic crisis, complementary labor reforms, external shocks) (Bernal, 2009).

Limited panel data: Although we have long aggregate time series, individual panel data are limited, making it difficult to analyze individual transitions between formality and informality (García, 2011).

Qualitative gender dimensions: The quantitative analysis captures gaps in informality rates but not qualitative dimensions such as detailed occupational segregation, intra-occupational wage discrimination, cultural barriers, and care restrictions that limit formal female participation.

7. CONCLUSIONS

This study documents the evolution of informal employment in the 23 main Colombian cities over three decades (1994-2023), considering the implementation of Laws 100 of 1993 and 789

of 2002 as structural turning points, and incorporating gender equity analysis. The main findings are:

1. Differentiated impact of regulatory reforms: The increase in parafiscal costs (30.7% to >37%) associated with Law 100 generated pressures towards informality during 1994-2002, particularly in small enterprises and sectors with low productivity. The effect was amplified by the economic crisis of the late 1990s. Law 789 of 2002 had limited effects on the aggregate reduction of informality, although it increased labor turnover in medium and large companies.

2. Persistent territorial heterogeneity: The disparities in informality among the 23 cities are wide and persistent. Bogotá (34.7%), Medellín (37.5%) and Manizales (34.0%) make up an elite group with substantially lower rates than cities such as Sincelejo (67.4%), Riohacha (67.3%) and Valledupar (65.4%). These differences reflect structural disparities in human capital, productive structure, and institutional capacity.

3. 2010-2019 decline and post-pandemic reversal: The 2010-2019 period experienced a significant reduction in informality (10.3 percentage points in 23 cities), associated with economic growth, formalization policies, and institutional strengthening. However, the COVID-19 pandemic partially reversed these advances, with a recovery characterized by a predominant expansion of informal employment (92% of jobs created in 2025).

4. Complex gender disparities: Although the national aggregate shows greater male informality (57.7% vs. 53.1%), women with low education and in Caribbean cities face greater vulnerability (92.2% without basic education vs. 88.2% men; gaps of +12.7 p.p. in Cúcuta, +16.6 p.p. in Barranquilla). Higher education acts as a more effective protective factor for women than for men.

5. Multidimensional determinants: Urban informality in Colombia is the result of complex interactions between formalization costs, human capital, economic structure, institutional capacity, gender dimensions, and cultural factors. There is no single policy that can solve the problem; Strategies differentiated by territorial context and population subgroup are required.

6. Concentration in self-employment: Approximately 75% of informal employment in the 23 cities corresponds to self-employed workers, a group characterized by low education, low income and high vulnerability. Effective policies should focus on this segment, considering its specific constraints.

7.1 Policy implications

The results suggest the following recommendations:

a) Territorially differentiated policies: Recognize regional heterogeneities and design adapted interventions. Cities with high informality (Group 3) require structural investments in education, economic diversification and institutional infrastructure, beyond simple incentives for formalization.

b) Reform of parafiscal costs: Review the structure of payroll charges to reduce incentives for informality, particularly for microenterprises and low-paid workers. Consider flexible contribution schemes or targeted subsidies, evaluating lessons from successful international experiences (Brazil, Argentina).

c) Strengthening of human capital: The correlation between education and formality is robust. Investments in the coverage and quality of secondary and tertiary education will have long-term effects on reducing informality. Prioritize educational access for women in rural areas and intermediate cities.

(d) Gender equity policies: Implement care policies (daycare centers, parental leave, care services for the elderly) that reduce restrictions on women's formal participation. Focus on formalization in domestic employment and retail trade, sectors with a high concentration of women. Address occupational segregation through training and removing cultural barriers.
(e) Support for microenterprises and the self-employed: Develop comprehensive programmes that combine simplification of procedures, access to credit, business training and tangible benefits of formalization. The approach must recognize that many informal workers are not "evaders" but people who face multiple barriers to formalization.
(f) Institutional strengthening: Increase labour inspection capacities, particularly in medium-sized and small cities. The effectiveness of regulations depends critically on the perceived likelihood of detection and sanction. Develop integrated information systems that facilitate evasion identification.
(g) Non-contributory social protection: In view of the persistence of high informality, expand non-contributory social protection mechanisms (conditional subsidies, transfer programs, access to health care not linked to formal employment) that reduce the vulnerability of informal workers without eliminating incentives for formalization.

7.2 Future Research Agenda

The findings of this study open multiple lines for future research:

1. Analysis of individual transitions between formality and informality using longitudinal panel data, with specific attention to gender differences
2. Rigorous impact evaluation of specific formalization programs (PFLE, BEPS) using quasi-experimental designs and randomized evaluation methodologies
3. Analysis of the role of the digital economy and platforms in the reconfiguration of formality and informality, particularly for women and young people
4. Ethnographic studies on formalization decisions in microentrepreneurs and self-employed workers, incorporating gender dimensions and cultural context
5. Analysis of the sustainability of the social security system in the face of persistence of high informality, evaluating parametric and structural reforms
6. Systematic international comparisons with other Latin American countries with similar characteristics, identifying best practices in informality reduction and gender equity
7. Analysis of the intersectionality between gender, education, geographical area and ethnicity in determining informality and labor vulnerability
8. Evaluation of care policies and their impact on formal female participation in Colombian urban and rural contexts

Labor informality is one of the most persistent and complex structural challenges in Colombia. Its resolution requires a long-term vision, inter-institutional coordination, recognition of territorial, sectoral and gender heterogeneities, and sustained commitment to comprehensive policies that address root causes beyond marginal incentives for formalization.

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