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İÇİNDEKİLER

Sustainability in the Context of the Economy–Ecology Relationship 1
Ayşe TEKİN BALCI

Türkiye Ulusal Yapay Zekâ Stratejisinin Sürdürülebilir Kalkınma Amaçları Perspektifinden Analizi 27
Fehime GÜNBEGİ

Inflation and Human Development in Türkiye: An Empirical Analysis 47
Özge ARPACIOĞLU ÖZDEMİR

Kamu Borcunun Ekonomik Büyüme Üzerindeki Etkisi: G-20 Ülkeler Analizi 67
Dilek ATILGAN, Burak UĞUR

Makroekonomik Analizde Yeni Bir Dönem: Yapay Zekâ Destekli Politika Tasarımı ve Enflasyon Öngörüleri 96
Duygu ÇELİK, Mustafa Kerem BÖRÜ

Yoksullukla Mücadelede Etkin Eğitim Politikaları.....117
Zeliha ATMACA

Jeopolitik Risklerin Türkiye'nin Dış Ticaret Performansına Etkisi: Uzun Dönemli Ampirik Kanıtlar.....151
Melisa SIRMABIYIKLI ÇAĞİN, Samet TOPAL

Law As a Buffer: Legal Gender Rights and the Inequality-Female Labor Force Participation Nexus in West Africa 178
Salim SAIDY, Mahat Maalim IBRAHIM

Politik İstikrarsızlık, Jeopolitik Risk ve İklim Değişikliği İlişkisi.....200
Mustafa TORUSDAĞ

Eğitim Hizmetlerinin Kamusal Niteliği ve Kamu Eğitim Harcamaları: Türkiye ve Seçili Ülkeler Üzerine Bir Değerlendirme.....225
Ergün Pirsefa YILDIRIM, Murat DEMİR

"Bu kitapta yer alan bölümlerde kullanılan kaynakların, görüşlerin, bulguların, sonuçların, tablo, şekil, resim ve her türlü içeriğin sorumluluğu yazar veya yazarlarına ait olup ulusal ve uluslararası telif haklarına konu olabilecek mali ve hukuki sorumluluk da yazarlara aittir."

LAW AS A BUFFER: LEGAL GENDER RIGHTS AND THE INEQUALITY–FEMALE LABOR FORCE PARTICIPATION NEXUS IN WEST AFRICA

Salim SAIDY[1]

Mahat Maalim IBRAHIM[2]

1. INTRODUCTION

Women's participation in paid work is closely linked to development outcomes in West Africa. When women engage in economic activity, households diversify their income sources, children's health and educational outcomes often improve, and economies benefit from a broader use of available labor. Expanding women's participation in the labor market is therefore central to policy goals such as poverty reduction and inclusive growth (IMF, 2018; World Bank, 2024a). However, patterns across the region remain uneven. Although female labor force participation rates are relatively high by global standards, women's labor is heavily concentrated in subsistence agriculture and the informal sector. These participation rates vary significantly across countries, fluctuating in ways that are not fully explained by conventional economic and demographic factors (Jayachandran, 2021; Klasen, 2019).

Among the main drivers of female labor force participation, income inequality has received less attention than

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factors such as education, fertility, or access to finance. High inequality reshapes household choices, limits economic opportunities for women at the lower end of the income distribution, and reinforces traditional social norms regarding wage earners (Klasen & Lamanna, 2009). Quantifying this penalty, Iheonu et al. (2020) find that higher inequality is linked to lower female labor force participation across sixteen West African nations, corroborating broader evidence from Sub-Saharan Africa (Asongu & Odhiambo, 2019; Gonzales et al., 2015).

In light of this evidence, this chapter argues that the existing literature largely ignores the legal framework moderating the inequality-participation relationship. Regulations concerning mobility, contract rights, asset ownership, and equal pay vary significantly across West Africa and have evolved unevenly over the past two decades (Hyland et al., 2020; World Bank, 2023). These rules determine a woman's economic resilience during periods of financial stress. When women have stronger legal standing in the labor market, widening inequality may have a weaker effect on their participation decisions than in settings where legal dependence persists. In this case, the legal environment acts as a buffer, shaping the actual severity of inequality's impact on female employment.

This hypothesis has not yet been examined for West Africa. Most of the literature on women's legal rights, much of it based on the World Bank's *Women, Business and the Law* (WBL) index, treats legal reform as a direct determinant, confirming that stronger rights are associated with higher employment outcomes (World Bank, 2024a). A parallel literature explores institutional factors as moderators in related relationships, including evidence that governance quality shapes how financial inclusion affects women's labor outcome in Sub-Saharan Africa (Onwe et al., 2026). Nevertheless, to our knowledge, no study has investigated

whether legal gender equality mitigates the adverse effects of income inequality on female labor force participation. Quantifying this interaction is the core contribution of this chapter.

We address this gap using panel data of 16 West African economies from 2000 to 2024. To ensure comparability, our empirical strategy follows the baseline specification of (Iheonu et al., 2020), extending the model by interacting income inequality with the WBL index within a fixed-effects framework. We apply Driscoll and Kraay (1998) standard errors to account for cross-sectional dependence. This chapter, therefore, engages with a broader macroeconomic question: how institutions mediate the effects of structural economic forces on development outcomes. Demonstrating how the two interact is not only of empirical interest but also of policy relevance. Where legal reforms strengthen women's economic autonomy, they may reduce the extent to which rising inequality translates into lower female labor force participation. Even when governments cannot quickly alter the distribution of income, institutional reform can still serve as a practical lever for improving labor market outcomes for women.

2. THEORETICAL FRAMEWORK

2.1. Theoretical Perspectives on Female Labor Supply

The neoclassical analysis of female labor supply originates at the household level. Mincer (1962) formalized the decision to work as an allocation of time across market labor, home production, and leisure. Thus, a married woman's participation hinges on her potential wage relative to the value of her domestic time and the income of other household members. Becker (1965) expanded this into a broader theory of time allocation, where households combine purchased market goods

with their own time to maximize utility. Both frameworks establish that participation responds to relative prices and household income. This theoretical foundation explicitly links female labor supply to the distribution of income across society, not only its aggregate level.

A second strand of literature examines participation paths during economic growth. The feminization hypothesis posits a U-shaped relationship between development and female labor supply (Goldin, 1994; Verick, 2014). Participation is often high in agrarian economies, declines during early industrialization as male wages rise, and eventually rebounds alongside expanding education and service sectors. Yet, empirical evidence for this curve is highly inconsistent. While Chapman (2015) observes the pattern in the Middle East and North Africa, Verme (2015) finds little supporting evidence. Importantly, Iheonu et al. (2020) show that economic expansion in West Africa reduces female participation, failing to produce the anticipated upward curve. The primary lesson is that aggregate development alone does not automatically integrate women into the workforce. Instead, structural forces such as income distribution and institutional frameworks dictate these outcomes.

A third body of literature links gender gaps directly to macroeconomic performance. Klasen and Lamanna (2009) and Cuberes and Teignier (2018) demonstrate that disparities in education and employment stifle growth by restricting the talent pool and transmitting disadvantage across generations. This logic highlights the mechanism driving this chapter: broader economic inequality limits the opportunities available to women, which in turn decreases their labor market participation.

2.2. Income Inequality and Women's Economic Participation

Empirical research linking income inequality to female labor force participation remains sparse compared to the vast literature on education and fertility, especially in African economies. Focusing on Sub-Saharan Africa, Asongu and Odhiambo (2019) show that household income disparities reduce female employment and, in certain contexts, drive up female unemployment. Building on this foundation, Iheonu et al. (2020) highlight that widening inequality reduces participation rates in West Africa, while access to domestic credit, remittances, and female education act as strong positive drivers.

Multiple mechanisms drive this relationship. Severe inequality concentrates poverty at the bottom of the distribution, creating a dual trap that locks women out of formal employment while simultaneously forcing them into vulnerable, subsistence labor (Klasen & Lamanna, 2009). Additionally, skewed income distributions restrict access to credit and essential services. This barrier prevents women from initiating or scaling business activities, proving why financial development consistently emerges as a strong positive predictor of labor force participation (Azizi, 2018; Field et al., 2016). Recent literature increasingly views this relationship as conditional rather than uniform. Using a nonlinear ARDL approach, Akhtar et al. (2023) indicate that the penalty of inequality varies significantly across different outcome distributions. Therefore, modern empirical work is shifting away from estimating single average effects toward models that account for contextual factors.

2.3. Legal Gender Rights as a Conditioning Institution

This chapter centers on the legal framework governing women's economic life. The World Bank's Women, Business and the Law (WBL) index quantifies these rules, evaluating

economies on critical dimensions such as mobility, equal pay, and asset ownership across a woman's working life (World Bank, 2023, 2024a). By capturing verifiable legislative changes rather than subjective survey, the index provides a robust, cross-country measure of legal gender equality. The data reveals that stronger legal rights consistently correlate with higher female employment, while restrictions on property and mobility widen labor gaps (World Bank, 2024a). Regional literature corroborates this trend in Sub-Saharan Africa, confirming that statutory reforms directly enable women's transition into decent work (Fordjour et al., 2025).

While existing literature establishes a direct link between legal rights and employment, it largely overlooks whether the legal environment moderates other macroeconomic forces. The closest study uses institutional quality as a moderator. For instance, Onwe et al. (2026) show that strong governance amplifies the positive impact of financial inclusion on female employment in Sub-Saharan Africa. This notion of institutional moderation extends naturally to our hypothesis. If governance shapes the returns to finance, then statutory gender rights, the institution most explicitly defining women's market access, should mediate the labor market penalties of income inequality.

This chapter reconciles this isolated literature. Rather than treating inequality as a uniform penalty and legal rights only as a separate driver, we examine their intersection. This leads to a clear, testable hypothesis: the adverse impact of income inequality on female labor force participation diminishes as statutory gender rights improve. The subsequent sections evaluate this empirically.

3. DATA AND METHODOLOGY

3.1. Data and Variables

The study uses panel data of 16 West African countries from 2000 to 2024. The sample comprises Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Retaining this exact cohort preserves comparability with Iheonu et al. (2020).

As detailed in Table 1, the dependent variable is the female labor force participation rate (World Bank, 2024b), and the primary independent variable is the Gini coefficient (Lahoti et al., 2015). The Women, Business and the Law (WBL) index serves as the institutional moderator (World Bank, 2024a). Our control variables broadly reflects Iheonu et al. (2020), incorporating domestic credit, personal remittances, and the natural logarithm of GDP per capita alongside its square to account for non-linear development paths. However, because female secondary enrollment data is severely limited for this specific panel, we substitute the total fertility rate as a reliable inverse proxy for human capital constraints. Table 2 reports the summary statistics.

Table 1. Variables and Data Sources

Variable	Definition	Source
FLFP	Female labor force participation rate (% of female population aged 15–64)	WDI
Inequality (Gini)	Gini coefficient of income distribution	GCIP
WBL	Women, Business and the Law index (0–100)	World Bank WBL
Domestic credit	Domestic credit to the private sector (% of GDP)	WDI
Remittances	Personal remittances received (% of GDP)	WDI
Fertility	Total fertility rate (births per woman)	WDI
GDP per capita	GDP per capita (constant US$)	WDI

Note: WDI = World Development Indicators; GCIP = Global Consumption and Income Project; WBL = Women, Business and the Law. GDP per capita and its square are loggerized.

Table 2. Descriptive Statistics

Variable	Mean	Std. dev.	Min.	Max.
FLFP	58.79	13.84	26.80	81.94
Inequality (Gini)	0.584	0.038	0.495	0.700
WBL	52.42	26.37	3.77	97.50
Domestic credit	15.53	11.84	-2.33	68.46
Remittances	4.82	4.88	0.03	27.16
GDP per capita	1167.54	743.12	392.90	4448.97

Note: N = 400. GDP per capita reported in levels (constant US$), while the logarithm is used in estimation.

Two descriptive features inform our empirical strategy. First, the WBL index exhibits significant variation, ranging from 3.77 to 97.50, capturing the legislative reforms necessary to identify our interaction effects. Second, both the female labor force participation rate and the legal rights index are within fixed bounds.

3.2. Model Specification

The baseline replicates the core specification of Iheonu et al. (2020), estimating the female labor force participation ($FLFP$) in country i in year t as a function of inequality and controls:

$$FLFP_{it} = \beta_0 + \beta_1 Inequality_{it} + \gamma X_{it} + \vartheta_i + \mu_{it}$$

where X_{it} represents the control vector, ϑ_i captures time-invariant country fixed effect, and μ_{it} is the error term. To test our moderation hypothesis, we extend this framework by introducing the WBL index and its interaction with inequality. We also incorporate year fixed effects (λ_i) to absorb unobserved regional shocks, such as the shared upward drift in legal rights across the continent:

$$FLFP_{it} = \beta_0 + \beta_1 Inequality_{it} + \beta_2 WBL_{it} + \beta_3 (Inequality_{it} \times WBL_{it}) + \gamma X_{it} + \vartheta_i + \lambda_i + \mu_{it}$$

Following standard econometric practices for multiplicative models (Brambor et al., 2006), both constituent terms are mean-centered prior to interaction. Subsequently, β_1 isolates the effect of inequality at the average level of legal rights, while β_2 represents the effect of legal rights on average inequality. The primary parameter of interest is β_3. With this interaction, the marginal effect of inequality is not a static coefficient but a dynamic function of the legal environment:

$$\frac{\partial FLFP_{it}}{\partial Inequality_{it}} = \beta_1 + \beta_3 WBL_{it}$$

Assuming a negative baseline penalty ($\beta_1 < 0$) and a mitigating interaction ($\beta_3 > 0$), the adverse impact of inequality shrinks as legal rights improve, fully neutralizing at the threshold $WBL^* = -\frac{\beta_1}{\beta_3}$. Rather than interpreting β_3 in isolation, our results trace this marginal effect across the empirical distribution of the WBL index to fully contextualize the threshold.

3.3. Estimation and Diagnostic Procedure

Prior to estimation, we evaluate the panel through a rigorous diagnostic test. Cross-sectional dependence is assessed via the Pesaran (2004) test, while slope homogeneity is verified following Pesaran and Yamagata (2008). We test for stationarity using both common (Levin et al., 2002) and heterogeneous (Im et al., 2003) panel unit-root tests. Finally, since the data exhibits a mix of integration orders, we apply Westerlund (2007) error-correction framework to test for a long-run cointegrating relationship. As established, all models are estimated using fixed effects with Driscoll and Kraay (1998) standard errors to correct for heteroskedasticity, serial correlation, and potential cross-sectional dependence. Finally, to ensure the interaction results are not driven by simultaneity or common trends, we subject the

findings to strict robustness checks using both lagged and first-differenced specifications.

4. RESULTS AND DISCUSSIONS

4.1. Preliminary Diagnostics

The pre-estimation diagnostics strictly dictate our empirical approach. The Pesaran (2004) test indicates a statistic of -0.53 ($p = 0.60$), failing to reject the null of cross-sectional independence. Nevertheless, we retain Driscoll and Kraay standard errors as a conservative measure to ensure robustness against both serial correlation and heteroskedasticity. Equally, the poolability test rejects slope homogeneity ($F = 29.09$, $p < 0.001$), confirming that the relationship between our regressors and female participation varies across countries.

Table 3 presents the panel unit-root test results. Both specifications confirm that the Gini coefficient is stationary at levels, whereas domestic credit, the WBL index, and log GDP per capita are integrated at first difference. However, the tests diverge on female labor force participation as the common-root approach suggests stationarity, while the heterogeneous-root test identifies it as integrated of order one. Since our earlier diagnostics reject slope homogeneity, we prioritize the heterogeneous-root findings, classifying the dependent variable and several key regressors as non-stationary at levels.

Table 3. Panel Unit-Root Tests (levels)

Variable	LLC statistics	IPS statistics	Conclusion
FLFP	-3.12 (0.001)	0.71 (0.760)	I(0) / I(1)
Inequality (Gini)	-6.63 (0.000)	-4.23 (0.000)	I(0)
WBL	1.89 (0.971)	4.50 (1.000)	I(1)
Domestic credit	-1.17 (0.121)	0.60 (0.726)	I(1)
Remittances	2.52 (0.006)	-1.51 (0.066)	I(0)
log GDP per capita	1.78 (0.963)	4.73 (1.000)	I(1)

Note: LLC = Levin, Lin and Chu (2002), common-root test; IPS = Im, Pesaran and Shin (2003), heterogeneous-root test. P-values in parenthesis.

Given that multiple series are integrated, we went further to test for a long-run relationship. The Westerlund (2007) panel cointegration test finds no evidence of cointegration. Across all four test statistics, the null of no cointegration cannot be rejected, with robust p-values ranging from 0.70 to 0.99, and the estimated long-run coefficients are statistically insignificant.

4.2. Baseline Results

Table 4 presents the baseline estimations across pooled, country fixed-effects, and two-way fixed-effects specifications. The pooled estimates differ from the fixed-effects results, with the domestic credit coefficient switching from negative to positive, showing the importance of accounting for unobserved country-specific heterogeneity. In the two-way model, both domestic credit and remittances significantly encourage female participation, supporting Iheonu et al. (2020) and broader evidence on financial inclusion (Field et al., 2016). Additionally, the linear and squared terms for log GDP per capita fail to yield a traditional U-shaped curve, aligning with earlier findings that aggregate economic expansion does not inherently drive female employment in West Africa. Conversely, the Gini coefficient remains statistically insignificant in the two-way model, diverging from the significant negative penalty identified by Iheonu et al. (2020). Three factors likely explain this difference. The longer sample period, the inclusion of year fixed effects to capture common shocks, and, most importantly, the limitations of estimating an unconditional effect. As hypothesized, the effect of inequality is conditioned by the legal environment. Estimating a single average coefficient, therefore, masks substantial heterogeneity in this relationship. Thus, the core economic substance lies entirely within the interaction model.

Table 4. Baseline Estimates: Income Inequality and Female Labor Force Participation

Variable	Pooled OLS	FE (one-way)	FE (two-way)
Inequality (Gini)	7.44 (26.23)	7.92 (19.59)	2.37 (21.01)
Domestic credit	-0.36*** (0.05)	0.20*** (0.04)	0.28*** (0.04)
Remittances	-0.15* (0.08)	0.07* (0.04)	0.14*** (0.06)
log GDP per capita	-229.27*** (15.19)	-118.77*** (13.20)	-113.20*** (12.86)
log GDP per capita²	16.20*** (1.13)	7.58*** (0.93)	7.33*** (0.92)
Constant	866.90*** (62.1456)	507.14*** (43.2696)	482.23*** (40.3417)
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
Observations	400	400	400
R^2 (within)	—	0.237	0.182

*Note: Driscoll–Kraay standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.10.*

4.3. The Moderating Role of Legal Rights

Table 5 presents the primary moderation model alongside two robustness checks. In the two-way fixed-effects specification, the interaction between inequality and the WBL index is positive and statistically significant ($\beta_3 = 0.675$, $p = 0.013$). This confirms the chapter's central hypothesis that the adverse impact of inequality on female labor force participation diminishes as statutory rights improve. Economically, widening inequality severely penalizes women under restrictive legal regimes, yet this penalty dissolves, and eventually reverses, when the law guarantees women independent market access. Since both constituent terms are mean-centered, the separate inequality coefficient reflects the sample average impact of legal rights, where it remains insignificant. This confirms that inequality's true labor-market effect is strictly conditional on the legal environment.

Conversely, the constituent WBL term shows a significant negative coefficient. Evaluated at average inequality, a higher WBL score appears to slightly reduce participation within countries. While seemingly counterintuitive, this effect is identified purely from the timing of legislative reforms relative to regional trends. In economies characterized by high, subsistence-driven informal employment, sudden legal gains often trigger a compositional shift, allowing women to exit vulnerable "distress" labor, rather than an aggregate increase in participation rates (Bhalotra & Umana-Aponte, 2010; Klasen & Lamanna, 2009). Regardless, the analytical focus of this model remains firmly on the interaction dynamics rather than these constituent levels.

Table 5. Moderating Role of Legal Rights and Robustness Estimates

Variable	Moderation	Lagged Gini	First difference
Inequality (Gini)	5.86 (21.77)	9.80 (21.33)	1.21 (3.90)
WBL index	-0.060*** (0.022)	-0.071*** (0.021)	-0.001 (0.009)
Inequality × WBL	0.675** (0.269)	0.710** (0.332)	0.460* (0.245)
Domestic credit	0.300*** (0.046)	0.317*** (0.048)	-0.019 (0.012)
Remittances	0.130** (0.056)	0.163*** (0.043)	0.016 (0.013)
log GDP per capita	-114.88*** (14.54)	-112.87*** (16.96)	-19.27 (20.52)
log GDP per capita²	7.50*** (1.00)	7.37*** (1.15)	1.54 (1.56)
Country and year effects	Yes	Yes	Yes
Observations	400	384	384

Note: Dependent variable is FLFP in the first two columns and ΔFLFP in the first-differenced column. Inequality and WBL are mean-centred. The lagged column uses the first lag of inequality and of the interaction. Driscoll–Kraay standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

4.4. Marginal Effects and the Turning Point

Given that the impact of inequality is strictly conditional, its true economic magnitude is best illustrated by plotting the

marginal effects across the observed range of legal rights. Based on the moderation model, the marginal effect of inequality on female participation is negative under restrictive regimes but rises monotonically, crossing zero at a WBL threshold of approximately 44, as shown in Figure 1. Below this turning point, representing environments with severe legal constraints, widening inequality significantly lowers participation, confirming the penalty identified in earlier literature. However, beyond this threshold, the adverse effect neutralizes. Given that the sample mean WBL score is 52, the legal framework in the average West African economy is sufficiently robust to prevent inequality from forcing women out of the labor market. Therefore, the inequality penalty is heavily concentrated only where statutory rights remain weakest.



Figure 1. Marginal Effect of Income Inequality on Female Participation at Varying Levels of Legal Rights

This dynamic reinforces the "buffer" concept central to this chapter. Statutory rights do not just operate as a parallel driver of employment; they fundamentally shape how macroeconomic structural features such as income distribution translate into labor market outcomes. The law guarantees women an independent

economic position, protecting them from the adverse effects of a worsening income distribution. This finding extends the institutional moderation reasoning of Onwe et al. (2026) from financial inclusion to income inequality, providing rigorous empirical backing to the descriptive trends observed by the World Bank (2024a).

4.5. Robustness and the Integration Question

To ensure our findings are not driven by specification choices, we conduct two stringent robustness checks. First, we replace inequality and its interaction with their first lags to mitigate simultaneity bias. The interaction remains positive, significant, and comparable to the baseline (0.710, $p < 0.05$). Second, we re-estimate the model in first differences to eliminate potential stochastic trends. Despite the expected loss of precision from discarding level variation, the interaction retains its sign and magnitude ($\beta_3 = 0.460$, $p = 0.061$). The survival of this dynamic across specifications confirms the robustness of our main result.

These first-differenced estimates directly resolve the absence of cointegration identified by the Westerlund (2007) test. While non-cointegrated integrated series typically risk spurious regression, three structural factors mitigate this concern. First, the core inequality variable driving interaction is stationary. Second, both participation rates and the WBL index are strictly bounded. That is, their apparent non-stationarity simply reflects high persistence within a short panel rather than genuine unit-root processes. Finally, our specification already extracts common economic trends via quadratic GDP controls and year effects. Since the interaction holds even when all common trends are differenced out, the “buffer” effect is conclusively a robust conditional association, not a byproduct of shared stochastic trends.

Similarly, the rejection of slope homogeneity suggests that our fixed-effects coefficients explain an average regional relationship rather than a universal parameter. While Mean-Group (MG) or Pooled Mean-Group (PMG) estimators (Pesaran et al., 1999) could theoretically model this heterogeneity, our specific panel dimensions (N=16, T=25) render such estimators statistically unstable. Therefore, the fixed-effects average remains the most reliable and appropriate metric for guiding regional policy.

5. CONCLUSION

This chapter investigated whether statutory rights moderate the impact of income inequality on female labor force participation in West Africa. Building on Iheonu et al. (2020), we evaluated this interaction using a panel of 16 economies from 2000 to 2024. The empirical evidence confirms our core hypothesis: the legal environment strictly conditions how macroeconomic inequality is experienced. The interaction between the Gini coefficient and the WBL index is positive and significant, highlighting that the participation penalty of inequality is severe under weak legal regimes but neutralizes, and eventually reverses, as rights strengthen. This finding is robust to lagged specifications and first-differencing, and it holds against the integration properties of bounded panel data.

The policy implications are actionable and direct. Income inequality and gender legislation are not parallel agendas; they are strictly complementary. This is because robust legal rights mitigate the labor market penalties of unequal wealth distribution, reforming statutes governing mobility, pay, property, and entrepreneurship provides a critical structural buffer. For governments lacking the fiscal capacity for rapid wealth redistribution, legislative reform offers a highly efficient

alternative. It is comparatively inexpensive, executable on a definitive timetable, and actively protects female employment while broader redistributive efforts take root.

Several limitations warrant consideration and provide avenues for future research. First, relying exclusively on the Gini coefficient suggests that future studies should test whether these dynamics hold across alternative distributional metrics, such as the Atkinson index or Palma ratio. Second, the WBL index measures *de jure* legislation, which cannot account for the enforcement gap in *de facto* rights, a measure the World Bank (2024a) is only beginning to quantify. Third, owing to the rejection of slope homogeneity, our fixed-effects coefficients strictly represent regional averages; future studies with longer time horizons could employ Mean-Group estimators to isolate country-specific dynamics. Despite these limitations, the key macroeconomic conclusion remains definitive. In West Africa, statutory rights shape the severity of the inequality penalty, offering policymakers a proven legislative lever to secure women's economic participation.

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