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The Gender Gap in Food Insecurity: A Global Panel Data Analysis in 2015–2023

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Abstract

Despite growing availability of sex-disaggregated data on food insecurity, systematic cross-country evidence on the structural determinants of the gender gap in food insecurity remains limited. This study examines the evolution and macroeconomic determinants of the gender gap in moderate-or-severe and severe food insecurity between 2015 and 2023, using sex-disaggregated Food Insecurity Experience Scale (FIES) data from FAOSTAT's newly launched Gender in Agrifood Systems domain; the descriptive sample includes 154 countries and the regression sample includes 125. Descriptive analysis shows that the global gender gap widened during the COVID-19 pandemic, peaking in 2021 for severe and in 2022 for moderate-or-severe food insecurity, before narrowing through 2023. Latin American and Southern African countries display the largest gaps, with Afghanistan, Libya, and Botswana showing the most pronounced female disadvantage. A two-way fixed-effects panel regression with Driscoll-Kraay standard errors shows that, once the gender gap in agrifood systems employment is included alongside GDP per capita and agricultural GDP share, all three covariates are jointly informative: the agricultural share of GDP is positive and significant in both food insecurity models, GDP per capita is negative and significant for severe food insecurity, and the employment gap is positive and significant for severe food insecurity. A Hausman test confirms the fixed-effects specification is appropriate, and diagnostics rule out concerning multicollinearity. These findings suggest that structural dependence on agriculture and women's concentration in agrifood employment, rather than income level alone, are associated with wider gender disparities in food access, pointing to labour-market structure as an important and previously underexplored channel linking gender inequality to food access.

Keywords: Gender, Gender Inequality, Gender Gap, Gender Disparity, Food Insecurity, Agriculture, Agrifood Employment

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1. INTRODUCTION

Food insecurity remains one of the most persistent development challenges of the twenty-first century, and its burden is not distributed equally between women and men. A systematic review and meta-analysis of 42 studies covering 233,153 people found that household food insecurity was 40% higher when women were the survey respondent, and that female-headed households were 75% more likely to be food insecure than male-headed ones (Jung et al., 2017). Since the introduction of the Food Insecurity Experience Scale (FIES) as the measurement instrument underlying Sustainable Development Goal indicator 2.1.2, cross-country evidence has consistently shown that women experience moderate or severe food insecurity at higher rates than men in nearly every region of the world (Ballard et al., 2013; Food and Agriculture Organization of the United Nations [FAO] et al., 2022). This gap is not a statistical artefact of aggregate poverty measures; it reflects gendered patterns of access to income, land, decision-making power within the household, and time available for food acquisition and preparation.

The gender gap in food insecurity is also dynamic rather than fixed. Global estimates indicate that the gap widened sharply in the immediate aftermath of the COVID-19 pandemic, particularly in 2021, before narrowing over the following two years a pattern attributed to the disproportionate loss of income and increase in unpaid care responsibilities experienced by women during the crisis (FAO et al., 2025). More recent evidence points to a renewed widening of the gap between 2023 and 2024, with Latin America and the Caribbean consistently identified as the region with the largest disparities between men and women (FAO, n.d.). These fluctuations suggest that the gender gap in food insecurity functions as a sensitive indicator of women's structural vulnerability to economic and social shocks, making it a policy-relevant object of study, distinct from though correlated with aggregate food insecurity levels.

Despite the growing availability of sex-disaggregated FIES data, empirical research explaining why the gender gap varies so substantially across countries and over time remains limited. Existing literature has largely taken one of three forms: descriptive cross-sectional comparisons published in FAO's annual State of Food Security and Nutrition in the World (SOFI) reports (FAO, n.d.; FAO et al., 2025); household- and country-level case studies, such as the analysis of household food insecurity in Lima, Peru, which found that woman-headed households faced substantially higher odds of food insecurity than man-headed households (Santos et al., 2022), or the growth-constraints analysis of Kazakhstan's own agricultural sector, which linked women's restricted access to land, finance, and paid employment to household food insecurity in Karaganda oblast (Nugmanova, 2020); and panel-data studies at the sub-national or regional level (Lutomia et al., 2019; Patwardhan, 2020; Tayal, 2019). A recent global study using individual-level data from 137 countries found that women remain more likely than men to experience food insecurity even after controlling for income, employment, and education, implying that observable socio-economic characteristics explain only part of the gap (Mane et al., 2025). Cross-country panel analyses that systematically model the gender gap as a function of macro-structural variables over time remain comparatively rare.

This study uses FAOSTAT's sex-disaggregated food insecurity data over the period 2015–2023 to examine the evolution and macroeconomic determinants of the gender gap in food insecurity at the global level, drawing on two related samples: a descriptive sample of 1,119 country-year observations across 154 countries with valid regional classification, spanning all nine annual periods from 2015 to 2023, and a smaller regression sample of 837 country-year observations across 125 countries for which the additional employment covariate described in Section 3 is also available. Specifically, the study asks: (1) how has the gender gap in food insecurity evolved globally and across regions

between 2015 and 2023, and what role did the COVID-19 pandemic play in this trajectory; and (2) to what extent are cross-country and within-country differences in the gender gap associated with income level and the structural weight of agriculture in the economy. The study contributes to the literature in three ways: first, by providing an updated global panel-data account of the gender gap in food insecurity that extends beyond the single-year comparisons typical of FAO's own reporting; second, by explicitly incorporating the pandemic period as a natural experiment in gender-differentiated vulnerability; and third, by identifying agricultural dependence as a robust structural correlate of the gap, offering an evidence base for targeted policy intervention, including in agrarian, transition economies such as Kazakhstan.

2. LITERATURE REVIEW

The theoretical foundation for expecting a systematic gender gap in food insecurity rests on well-established evidence regarding women's unequal access to productive resources. In an influential early synthesis, Agarwal (2015) argued that women's constrained rights over land, labour, and decision-making within agriculture are a root cause of both lower agricultural productivity and higher household food insecurity, a framework that continues to organise much of the subsequent empirical literature. Reviews of the gender-and-food-systems literature document that women face persistently restricted access to land, credit, extension services, and markets relative to men, and that closing these gaps is associated with higher agricultural yields and improved household nutrition outcomes (Njuki et al., 2023). In agrarian contexts, men often control land-based decision-making, leaving women dependent on less fertile plots or male relatives for their livelihoods, with direct consequences for household food security (N-yanbini & Owusu-Ansah, 2024). Evidence from Pakistan similarly shows that women's land ownership is strongly associated with improved child food and nutrition outcomes, underscoring land access as a key structural channel linking gender inequality to food insecurity (Rehman et al., 2019). A Kazakhstan-specific growth-constraints analysis reaches a compatible conclusion in a very different institutional setting: rural women's limited access to agricultural finance, land, and formal employment, combined with a disproportionate unpaid-work burden, was found to constrain both household food security and broader agricultural growth in Karaganda oblast (Nugmanova, 2020).

A separate strand of the literature addresses whether the observed gender gap reflects genuine disparities in food access or measurement artefacts of the FIES instrument itself. A large cross-national analysis using the 2014 Gallup World Poll across 42 countries found that women had significantly higher odds of experiencing food insecurity than men, while a related methodological study testing for differential item functioning of the FIES scale across suburban, rural, and large-city respondents in the same 42-country sample found the gap to be robust to adjustment for country, education, income, age, and marital status — evidence that the observed disparity reflects substantive differences in food access rather than a scale artefact (Dallmann et al., 2015). A companion analysis of the same data found that food-insecure women reported systematically lower perceived life satisfaction than food-insecure men, and that men were less likely than women to report low life satisfaction even at the same level of food insecurity, pointing to a compounding psychosocial dimension of the gender gap (Graham et al., 2019).

At the macro level, FAO's State of Food Security and Nutrition in the World reports have tracked the global gender gap in food insecurity since the FIES module was incorporated into the Gallup World Poll, with the peer-reviewed validation of the underlying methodology completed in 2015 (Ballard et al., 2013; FAO et al., 2022). These reports document that the gap widened considerably during the COVID-19 pandemic, particularly

in 2021, before narrowing in 2022 and 2023, and that Latin America and the Caribbean has consistently exhibited the largest gender disparities in food insecurity of any world region (FAO, n.d.; FAO et al., 2025). A large-scale econometric study covering 792,000 individuals in 137 countries between 2014 and 2022 found that the gender gap in food insecurity persists even after controlling for income, employment, and education, and estimated that closing gender gaps in agricultural productivity and wages could raise global GDP by close to USD 1 trillion while reducing food insecurity for an estimated 45 million people (Mane et al., 2025). Using an independent large international sample and a Blinder-Oaxaca decomposition, Broussard (2019) similarly found that women were more likely than men to be food insecure, but that the magnitude of the gap varied sharply by region — around 4.7 percentage points in the European Union, but roughly 2 percentage points in South Asia and Sub-Saharan Africa — and that differences in household income, education, and social networks accounted for most, though not all, of the gap. A cross-national multilevel study combining household survey data from 42 countries with country-level indicators of legal gender equality found that women's household-level empowerment reduced the likelihood of food insecurity, but that country-level legal equality did not have a direct effect and instead moderated the relationship between food insecurity and other country-level variables such as agricultural exports and urbanisation (Wyant, 2021) — a finding consistent with the possibility that macro-level income or legal indicators alone are insufficient predictors of the gender gap.

A substantial household- and country-level literature examines the specific mechanisms linking gender, agriculture, and food security. Household panel regressions in Malawi found that households in which women controlled a greater share of income from crop sales experienced significantly fewer months of hunger, pointing to control over agricultural income — not merely participation in agricultural work — as an operative channel (Patwardhan, 2020). In Kenya, female-headed households were found to be more likely to be food insecure than male-headed households even after matching on observable characteristics, with the gap driven by female-headed households' more limited access to extension services, land quality, and farm size (Kassie et al., 2012); a separate panel study using two waves of household data in Western and Eastern Kenya found that gender significantly moderated the determinants of household food-security perceptions (Lutomia et al., 2019). In southern Ethiopia, female decision-making households had a significantly higher probability of chronic and transitory food insecurity than male decision-making households, with differences in household endowments and the returns to those endowments contributing to the gap (Gebre et al., 2021). Evidence from a two-year household panel in Uganda shows that female-managed plots produce systematically less output than male- or jointly managed plots, and that higher crop diversity is associated with lower productivity specifically on female-managed parcels, pointing to unequal access to labour, inputs, and agronomic support as an additional structural channel (Covarrubias, 2015).

Cross-country panel evidence complements these household-level findings. Using panel data for 20 Sub-Saharan African countries over a 16-year period (1999-2015), one study found that a decrease in the gender gap in economic participation had a significant positive effect on food security, while health inequality — captured through higher adolescent fertility rates and maternal mortality — had an even larger effect on undernourishment and dietary energy adequacy (Tayal, 2019). In rural Sub-Saharan Africa, off-farm income showed a stronger positive association with food security for female-headed and poorer-region households than for male-headed and richer-region households, suggesting that access to non-farm income opportunities is a particularly important channel for closing the gap for the most disadvantaged households (Dzanku, 2019). In Nigeria, a household empowerment

index combining decision-making authority, access to productive resources, control over income, community leadership, and time use was directly associated with food security, with a one percentage point increase in empowerment reducing food insecurity by roughly a third of a percentage point (Ashagidigbi et al., 2022).

Not all evidence points to a universal gender effect, however. A study of food insecurity in Central-Eastern Europe using 2018–2019 Gallup World Poll data found that women experienced mild food insecurity more often than men, but detected no statistically significant gender difference in moderate or severe food insecurity in the region (Dudek & Myszkowska-Ryciak, 2022) — a notable contrast to the large gaps documented in Latin America and parts of Africa, and broadly consistent with the comparatively small average gap this study finds for Europe. A regional study of food insecurity and gender inequality perceptions across 18 Latin American countries similarly found that food-insecure respondents were 30–50% more likely to perceive gender inequality, and that food insecurity, gender, low social support, and low education were the factors most strongly associated with such perceptions (Melgar-Quiñonez et al., 2019).

Taken together, this literature suggests that the gender gap in food insecurity reflects a set of overlapping and partly region-specific mechanisms — respondent gender, household headship, control over agricultural income, access to land and off-farm opportunities, and labour-market and legal inequality — rather than a single universal effect, and that the magnitude of the gap varies substantially by region even after controlling for individual-level characteristics (Broussard, 2019; Dudek & Myszkowska-Ryciak, 2022). This motivates two complementary hypotheses for a global cross-country panel analysis: first, that higher national income should be associated with a narrower gender gap, as economic development is generally accompanied by greater female labour-force participation and formal employment; and second, that a larger share of agriculture in the national economy should be associated with a wider gender gap, reflecting women's comparatively weaker land and resource rights and control over agricultural income in agrarian economies. These two hypotheses motivate the empirical specification developed in the following section.

3. METHODOLOGY

The study uses country-year panel data compiled from three domains of FAOSTAT's newly launched Gender in Agrifood Systems platform: the Food Security and Nutrition, Economic Participation and Incomes, and Macro Indicators domains (FAO, 2026a, 2026b). The dependent variable is the gender gap in food insecurity, calculated as the female minus male prevalence of (a) moderate-or-severe and (b) severe food insecurity among the population aged 15 and over, based on FIES estimates. The FIES module was first fielded in the Gallup World Poll in 2014, but that initial round served primarily to validate the scale's psychometric properties; nationally comparable, cross-country estimates based on the validated methodology are available only from 2015 onward, and the panel is accordingly bounded at that year. The upper bound of the estimation sample is 2023, set by the availability of the employment covariate described below, which is required for the full three-covariate specification used throughout this study.

Three covariates are included. GDP per capita (current USD, log-transformed) proxies national income and level of development. The share of agriculture, forestry, and fishing value added in GDP proxies the structural weight of the agricultural sector in the national economy; both series are drawn from FAOSTAT's Macro Indicators domain. The third covariate, newly available following the June 2026 launch of the Gender in Agrifood Systems domain, is the gender gap in agrifood systems employment, calculated as the female minus male share of total employment accounted for by agrifood

systems, drawing on FAOSTAT-harmonised ILO modelled estimates. This variable is included because a substantial body of literature reviewed above links the gender gap in food insecurity to women's concentration in agricultural and agrifood employment, control over agricultural income, and labour-market inequality more broadly (Broussard, 2019; Patwardhan, 2020; Tayal, 2019).

After merging the dependent variable with all three covariates and restricting the sample to country-years with non-missing observations throughout, the estimation sample comprises 837 country-year observations across 125 countries, 2015–2023. The panel is unbalanced: not every country has data for every year, and no imputation was performed — a country-year was retained only if the dependent variable and all three covariates were simultaneously non-missing (listwise deletion). On average, each country contributes 837/125 ≈ 6.7 of the eight years for which country-level observations exist in the underlying domain (2017 is absent from the estimation sample, as explained below), with individual countries ranging from a single year to the full eight-year span.

A separate, larger descriptive sample of 1,119 country-year observations across 154 countries — omitting the employment covariate — is used for Section 4.1 to characterise the gap as fully as the underlying FIES data allow. This descriptive sample supplements the 2017 gap values, absent from the June 2026 domain release, with sign-corrected figures from FAOSTAT's previous (pre-June-2026) gender indicators release; the two releases agree closely for the 1,004 country-years available in both (mean absolute difference 0.04 percentage points), so this substitution is unlikely to materially affect the descriptive patterns reported below. The regression sample does not include 2017, both because the employment covariate is unavailable for that year in either domain and to avoid mixing differently harmonised data sources within the regression itself. The empirical specification is a two-way fixed-effects panel regression, shown in formula (1):

$$Gap_{it} = \beta_0 + \beta_1 \cdot ln(GDPpc)_{it} + \beta_2 \cdot AgShare_{it} + \beta_3 \cdot EmpGap_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where:

Gap_{it} - the gender gap in food insecurity for country i in year t,
$EmpGap_{it}$ - the gender gap in agrifood systems employment,
μ_i - country fixed effects,
λ_t - year fixed effects,
ε_{it} - the error term.

Country fixed effects absorb time-invariant unobserved heterogeneity (e.g., cultural norms, historical institutions), while year fixed effects absorb global shocks common to all countries, including the COVID-19 pandemic. Standard errors are estimated using the Driscoll-Kraay procedure, which is robust to heteroskedasticity, autocorrelation, and cross-sectional dependence. Model specification is validated using an F-test for poolability of fixed effects, a Hausman test comparing fixed- and random-effects estimators, and variance inflation factors (VIF) to assess multicollinearity among the three covariates. All estimations were conducted in Python using the linearmodels package.

4. ANALYSIS AND RESULTS

On average, the moderate-or-severe gender gap is 2.06 percentage points (SD = 3.34) and the severe gender gap is 0.57 percentage points (SD = 1.56), both indicating that women are, on average, more food insecure than men across the sample, consistent with prior global estimates (FAO et al., 2025) and with the meta-analytic evidence of a substantially higher

prevalence of food insecurity among women (Jung et al., 2017). Table 1 reports descriptive statistics for the estimation sample (N = 837, the sample used in the regression, which requires non-missing data on the employment covariate).

Table 1. Descriptive statistics of study variables (N = 837)

Variable	N	Mean	SD	Min	Max
Gap, moderate-or-severe (p.p.)	837	2.06	3.34	-12.90	16.20
Gap, severe (p.p.)	837	0.57	1.56	-7.30	10.40
ln(GDP per capita)	837	8.86	1.46	5.67	11.80
Agriculture share of GDP (%)	837	9.79	9.63	0.03	54.07
Gender gap, agrifood employment (p.p.)	837	2.45	11.90	-45.22	49.36

Note: compiled by the authors based on FAOSTAT data (FAO, 2026a)

All regression results use the smaller, eight-period, three-covariate estimation sample. Figure 1 characterizes the gender gap using a broader descriptive sample of 1,119 country-year observations across 154 countries larger than the N = 837 regression sample in Table 1 both because it does not require non-missing data on the employment covariate and because, unlike the regression sample, it includes 2017.

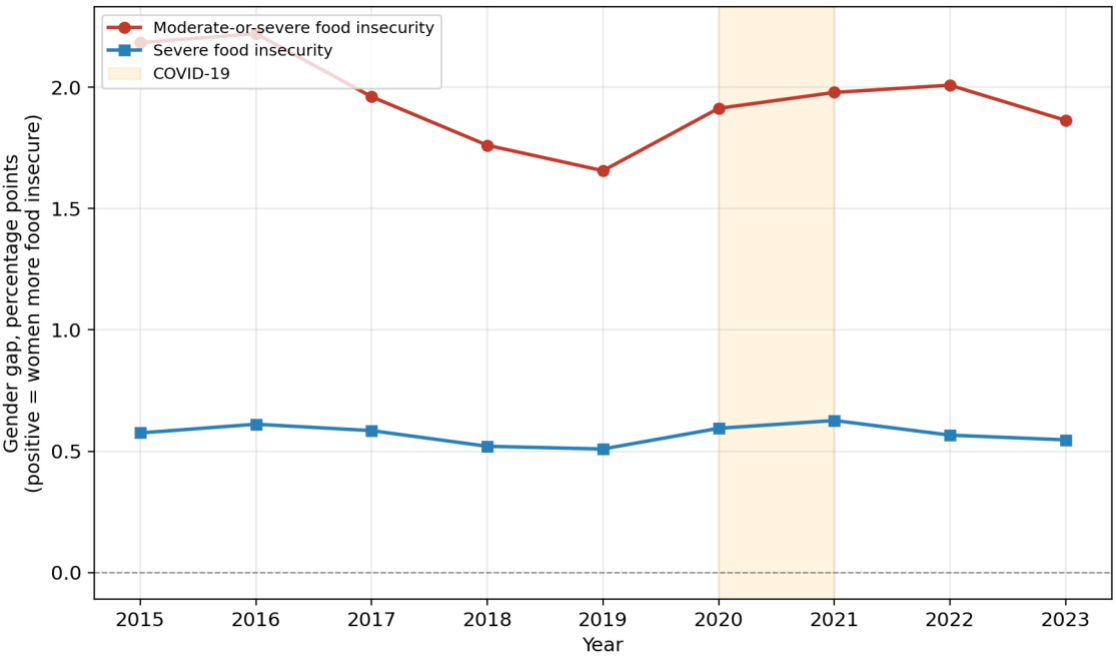


Figure 1. Global gender gap in food insecurity, 2015–2023

The global average gap widened from 1.66 percentage points in 2019 to a pandemic-period peak of 2.01 in 2022 for the moderate-or-severe indicator, and from 0.51 to 0.63 percentage points for the severe indicator between 2019 and 2021, before both measures declined gradually through 2023 — a trajectory consistent with FAO's own account of pandemic-driven widening followed by partial recovery (FAO et al., 2025).

At the country level, Figure 2 shows that Afghanistan and Libya exhibit by far the largest female disadvantage, with gender gaps of 6.7 and 5.9 percentage points in severe food insecurity, respectively, averaged over 2015–2023.

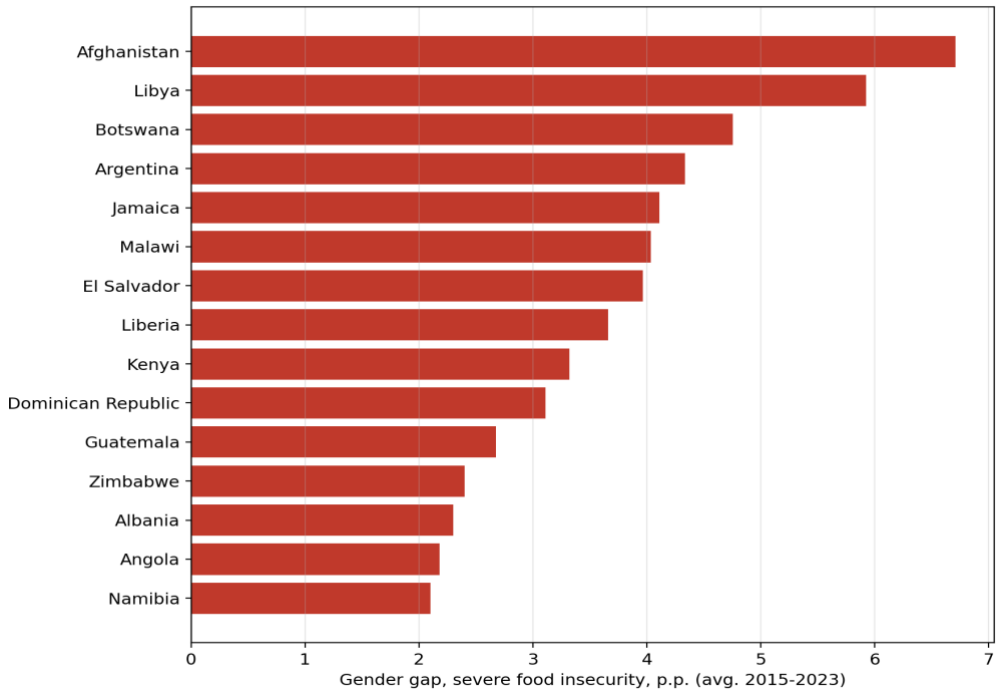


Figure 2. Countries with the largest gender gap in severe food insecurity, average 2015–2023

Botswana, Argentina, El Salvador, Malawi, Liberia, and Jamaica follow closely behind. Several Latin American and Caribbean countries appear among the fifteen countries with the widest gaps, corroborating FAO's identification of Latin America and the Caribbean as a region of persistent concern (FAO, n.d.).

At the regional level, Figure 3 shows that the Americas display the largest average disadvantage for women, followed by Africa and Asia.

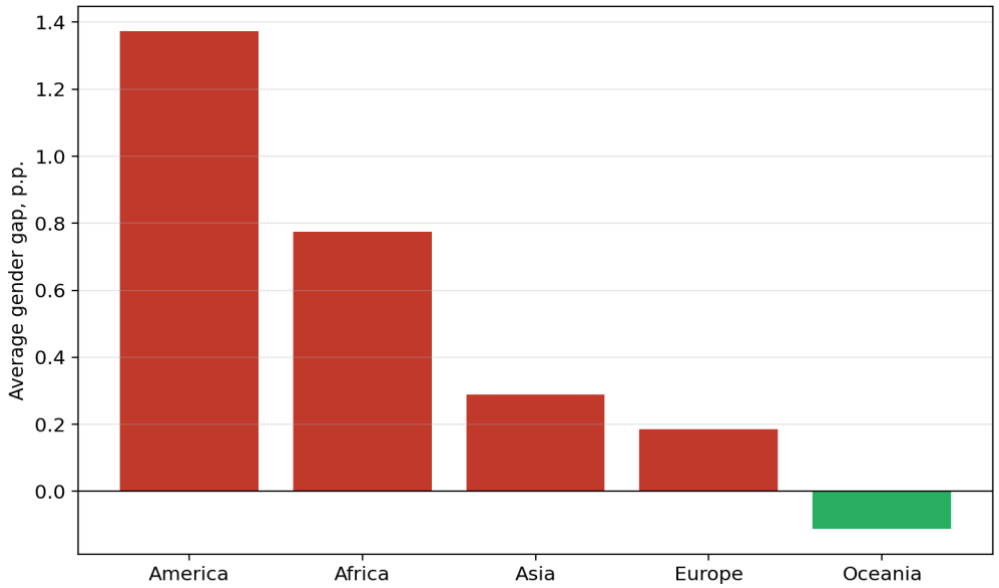


Figure 3. Average gender gap in severe food insecurity by world region, 2015–2023

Oceania is the only region where the average gap in the descriptive sample does not indicate a disadvantage for women, and Europe shows the smallest positive average gap. This regional ordering is broadly consistent with prior evidence that the gender gap in food insecurity varies substantially by world region even after controlling for individual characteristics (Broussard, 2019), and specifically with evidence that gender differences in moderate-or-severe food insecurity are statistically indistinguishable from zero in Central-Eastern Europe (Dudek & Myszkowska-Ryciak, 2022).

Table 2 presents the results of the two-way fixed-effects panel regression described in Section 3, with the moderate-or-severe and severe food insecurity gaps as dependent variables in Models 1 and 2, respectively.

Table 2. Two-way fixed-effects panel regression results (Driscoll–Kraay standard errors)

Variable	Model 1: Gap, moderate-or-severe	Model 2: Gap, severe
ln(GDP per capita)	-0.088 (0.299)	-0.611** (0.262)
Agriculture share of GDP	0.147** (0.056)	0.077*** (0.024)
Gender gap, agrifood employment	0.005 (0.007)	0.005** (0.002)
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	837	837
Countries	125	125
Within R^2	0.014	0.010
F-test poolability (p-value)	<0.001	<0.001

Note: compiled by the authors

Table 2 presents the results of the two-way fixed-effects panel regressions with Driscoll–Kraay standard errors. In Model 1, the agriculture share of GDP is positively and statistically significantly associated with the moderate-or-severe food insecurity gender gap ($\beta = 0.147$, SE = 0.056), whereas GDP per capita and the gender gap in agrifood employment are not statistically significant. In Model 2, which examines the severe food insecurity gap, GDP per capita shows a negative and statistically significant association ($\beta = -0.611$, SE = 0.262), while both the agriculture share of GDP ($\beta = 0.077$, SE = 0.024) and the gender gap in agrifood employment ($\beta = 0.005$, SE = 0.002) are positively associated with the dependent variable. Both specifications include country and year fixed effects and are estimated using 837 observations from 125 countries. The relatively low within-R^2 values (0.014 and 0.010) indicate that the included covariates explain a limited proportion of within-country variation over time. At the same time, the poolability tests are statistically significant in both models ($p < 0.001$), supporting the use of fixed effects rather than a pooled specification.

5. DISCUSSION

The share of agriculture in GDP is positive and statistically significant in both models ($\beta = 0.147$, $p = 0.010$ for the moderate-or-severe gap; $\beta = 0.077$, $p = 0.002$ for the severe gap), indicating that, controlling for country and year fixed effects, an increase in the agricultural share of the economy is associated with a widening of the gender gap in food insecurity. This finding is consistent with the land-access and agricultural-income literature reviewed above (Njuki et al., 2023; N-yanbini & Owusu-Ansah, 2024; Patwardhan, 2020; Rehman et al., 2019), in economies where agriculture constitutes a larger share of output, women's comparatively restricted access to land, credit, agricultural decision-making, and control over agricultural income appears to translate into a measurably wider gender disparity in food access.

GDP per capita is negative and statistically significant in the severe food insecurity model (β = -0.611, p = 0.020), consistent with the hypothesis that higher national income is associated with a narrower gender gap even within countries over time, though it is not significant in the moderate-or-severe model. The gender gap in agrifood systems employment is positive and significant in the severe food insecurity model (β = 0.005, p = 0.016): countries and years in which women are more concentrated in agrifood employment relative to men tend to exhibit a wider gender gap in severe food insecurity, consistent with evidence that agrifood employment — particularly in its agricultural component — is disproportionately informal, low-paid, and precarious for women (Broussard, 2019; Dzanku, 2019). None of the three covariates reaches significance for the moderate-or-severe outcome except the agricultural share, suggesting that the mechanisms captured here operate more strongly at the more acute end of the food-insecurity distribution. Complementary evidence from FAOSTAT's own gender domain illustrates a related structural constraint specifically for Kazakhstan: in 2018, women nationally spent 3.06% of their time on unpaid care work compared with 1.18% for men, a gap of similar relative magnitude in both urban and rural areas, together with earlier evidence that female labour-force participation in Kazakhstan did not rise proportionally with economic growth and expanding childcare provision over 2006–2016 (Meurs et al., 2021) underscoring that unpaid care responsibilities and labour-market structure, not captured by income or agricultural share alone, remain a plausible parallel channel linking gender inequality to economic outcomes even in upper-middle-income, less agrarian contexts (FAO, 2026a, 2026b).

Diagnostic tests support the chosen specification. The F-test for poolability strongly rejects the pooled OLS model in favour of fixed effects ($p < 0.001$ in both models), and a Hausman test comparing fixed- and random-effects estimators rejects the null hypothesis of random-effects consistency (χ^2 = 19.67, df = 4, p = 0.0006), confirming that fixed effects is the appropriate estimator. The four degrees of freedom correspond to the three covariates plus the intercept, which is estimated in both the fixed- and random-effects specifications used for this comparison and is therefore included alongside the slope coefficients in the test. Variance inflation factors are 1.59 for ln(GDP per capita), 1.67 for agricultural share, and 1.08 for the employment gap all well below conventional thresholds for concerning multicollinearity (VIF > 5–10) — indicating that the moderate correlation between ln(GDP per capita) and agricultural share (r = -0.82) does not materially distort the coefficient estimates.

Within-R^2 values remain modest (1.0–1.4%), indicating that this three-covariate specification explains only a small share of the year-to-year variation in the gender gap within countries; most of the explanatory power of these structural variables operates at the between-country level rather than through annual within-country fluctuations. This is consistent with the possibility that the agricultural-share channel operates jointly with, and partly through, gendered employment structure: the gender gap in agrifood employment captures a distinct, labour-market dimension of structural inequality that is not reducible to the sectoral composition of output alone, and the two covariates together provide a more complete though still partial account of the economic structures underlying the gender gap in food insecurity.

Two data limitations should be noted. First, the underlying FAOSTAT Gender in Agrifood Systems domain was only launched in June 2026 (FAO, 2026b); as with any newly harmonised statistical domain, country-level estimates may be revised as methodology and source coverage mature, and users should consult the current release notes when replicating or extending this analysis. Second, the employment covariate is available only through 2023 at the time of writing, since it draws on ILO modelled estimates that are

incorporated into FAOSTAT with a one-year lag relative to food-insecurity data; this sets the upper bound of the estimation sample and means that the most recent year of food-insecurity data could not yet be paired with a matching employment estimate.

6. CONCLUSION

This study provided an updated global account of the gender gap in food insecurity using sex-disaggregated FIES data between 2015 and 2023, covering 154 countries in the descriptive analysis and 125 countries in the regression analysis. Three main findings emerge.

First, the global gender gap in food insecurity widened during the COVID-19 pandemic and has only partially narrowed since, confirming that the pandemic functioned as a gender-differentiated shock to food access. Second, the gap is highly unevenly distributed across countries and regions, with the largest female disadvantage concentrated in Afghanistan, Libya, Botswana, and several Latin American and Caribbean countries, corroborating FAO's own regional assessments. Third, panel regression analysis with country and year fixed effects shows that the share of agriculture in national output, GDP per capita, and the gender gap in agrifood employment are jointly informative predictors of the gender gap in severe food insecurity, although each covariate individually explains only a modest share of within-country variation, and the agricultural-share result depends on jointly controlling for gendered employment structure rather than holding in a simpler two-covariate specification.

These findings carry policy implications, including for agrarian transition economies such as Kazakhstan, where qualitative evidence has already linked rural women's restricted access to land, finance, and formal employment to household food insecurity (Nugmanova, 2020). In agriculture-dependent economies more broadly, closing the gender gap in food insecurity is likely to require targeted interventions in women's land tenure security, access to agricultural credit and extension services, control over agricultural income, and formalisation of women's agrifood employment, rather than relying on aggregate income growth alone to narrow the gap. Future research should extend this analysis as employment, education, and land-tenure covariates become available for more recent years and should examine whether the mechanisms identified here agricultural dependence, income, and gendered employment structure operate through the specific channels of land access, control over agricultural income.

AUTHOR CONTRIBUTION

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Resources: Dinara Kalybekova, Ainur Amirova.
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Data collection and interpretation: Zhanar Yeszhanova, Dinara Kalybekova.
Visualization: Dinara Kalybekova, Ainur Amirova.
Writing – review and editing: Zhanar Yeszhanova, Dinara Kalybekova, Ainur Amirova.

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