

Food Security and Gender Equality:

A synergistic understudied symphony

Introduction

Trying to understand the links between gender equality and food security is a complicated effort—especially at a global level. [FAO's 2010-2011 report on the State of Food and Agriculture](#) was one of the last global studies that presented new data and connections between gender equality, women, and food on a truly global scale. Much of the world's data on gender equality overlooks questions of food security. For example, of the 4 major global datasets on gender¹, including the [World Bank's Gender Data Portal](#), the only sex disaggregated food indicators reinforce women's role solely for their importance in reproduction: measuring anemia in women of childbearing age, and counting stunting for children. Similarly, most food security datasets are strangely silent on gender. Four major global food datasets², ignore sex disaggregation or gender in the data around food—except to account for anemia in women of reproductive age. *See appendix A.*

The Sustainable Development Goals have provided a platform to start looking at this data. [UN Women](#) published sex disaggregated data on the Food Insecurity Experience Scale in 112 countries in 2019 and regionally in 2020. The [SDG data portal](#) also publishes sex disaggregated data on income and production for farmers. Since 2017, the FAO³ has been including sex-disaggregated data in the state of food security globally. In 2022, [The State of Food Security and Nutrition in the World](#), shows that women have less food than men in every region in the world. Sadly, the gap between men and women's food security is growing. As of 2021, there are **150 million more women who are food insecure than men in the world**.⁴ That is three times the population of Ukraine.

Most global policies and data acknowledge that women play a key role in children's nutrition, but the relationship between gender equality and food security is more complex than just women giving birth to healthy babies. Regardless of their reproductive role, women have other rights, including the right to food. They are individuals who matter. But challenges for women continue, as women face the *triple burden* of being productive, being in charge of unpaid care work, and connecting communities. Women are critical members of society, who play important roles in producing food, and in getting it on the table. Their rights and their access to food are heavily intertwined. More than that, gender equality is highly connected to food security at a local, national, and global level. Simply put, as this research shows, **the more gender inequality there is in a country, the hungrier people are.**

Despite this truth, there is not enough exploration of these trends and connections. Often, research sex-disaggregates data **only when examining gender equality as a topic**; they fail to disaggregate when discussion "sector" issues like food and agriculture. Where data does exist on gender and food security, it most often focuses on a small number of countries or captures data at a single point in time. There is a great deal of literature that looks at small or moderate sample sizes in one or two countries. Those

¹ [The World Bank, Data 2x, Women Stats Project](#), and [Open Data Watch](#)

² [Food and Agriculture Organization, The World Bank, World Food Programme](#), and [Global Network Against Food Crisis](#)

³ Food and Agriculture Organization of the United Nations

⁴ Data calculated using the statistics from [UN Women Sustainable Development Goals](#) dataset (2014-2020) and the [FAO SOFI report 2022](#) (data from 2021) on gender gaps in food security; and [The World Bank's data on global populations](#)

studies provide consistent and compelling evidence that gender equality is a critical component of the food security story. For example, studies by the FAO and UNICEF have proved that **women suffer the most during shocks**, especially since they are responsible for the preparation and management of food.ⁱ The data exists in many places on a micro scale but is still invisible in the most commonly used global data.

The lack of collection and incorporation of sex-disaggregated data on global food security datasets translates to a lack of action addressing the problems of gender inequality and food security. Sadly, the reality is many policy makers do not take the time to do comprehensive literature reviews, and many may have no time to read in-depth articles to understand deep contextual issues when making urgent policy decisions. They often rely on global datasets and reports to understand key issues. The few research studies that do focus on gender equality and food security are confined to a small portion of countries and do not provide a global picture. This keeps the idea of women in food production a niche field that does not merit a place in the global numbers, and therefore the global conversation. We see this play out in global food policy: of [84 food policies in December of 2021](#), only 4% refer to women as leaders who can play a role in food security. 39% of those policies overlook women entirely.

Gender inequality and food insecurity are persistent realities that can be easily affected by the constantly changing global, national, and local contexts. The world has changed dramatically since [the 2010-2011 FAO report](#). As the world learns how to cope with the consequences of the COVID-19 pandemic, the Ukraine crisis involves an immediate impact on food security since both Russia and Ukraine are leaders in food commodities (such as wheat and sunflower oil) global markets, and Russia is a lead exporter of fertilizers and fuel (which are essential for agricultural production).

The overall purpose of this study is to explore the correlation between gender inequality values and food security scores worldwide jointly with existing literature. It makes the case that comparing global datasets between food security and gender equality creates powerful insights—and merits that the world produces, publish, and use more consistent data on gender equality and food.

Literature Review

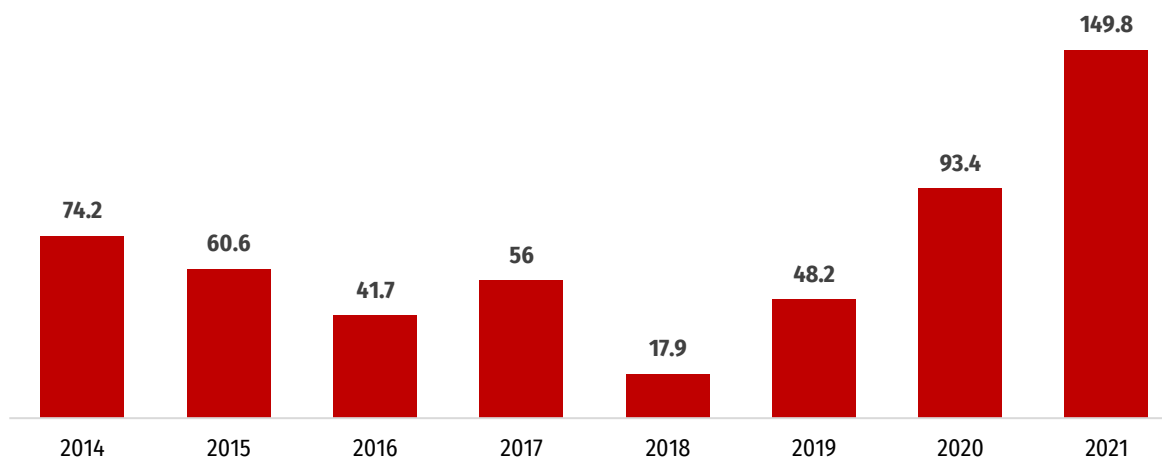
Food security is commonly ascribed to poverty.ⁱⁱ In 1996, food security was defined by the FAO as when people have physical and economic access to food that provides the nutrients to meet dietary needs to achieve a healthy lifeⁱⁱⁱ. Still, this concept is surrounded by gender-blindness; while in some places, gender inequality is considered a cause and consequence of food insecurity,^{iv} many more dialogues are leaving aside the importance of gender equality on food security.

Despite women being responsible for 90% of preparing and buying food^v **they are eating last and least**.^{vi} As of 2021, there are **150 million more women who are food insecure than men in the world**.⁵ That is three times the population of Ukraine. It is also 8.4 times higher than in 2018, when only 18 million more women than men were food insecure.⁶ In [Sudan](#), 65% of women and only 49% of men reported being food insecure.^{vii} In Nigeria, a woman IDP says, “We have reduced the amount of food for everyone, except my husband who is the man of the house.”^{viii}

⁵ Data calculated using the statistics from [UN Women Sustainable Development Goals](#) dataset (2014-2020) and the [FAO SOFI report 2022](#) (data from 2021) on gender gaps in food security; and [The World Bank's data on global populations](#)

⁶ Ibid

How many more women are hungry than men (in millions)



Even when both men and women are technically food insecure, women often bear bigger burdens. For example, in [Somalia](#), men report eating smaller meals; women report skipping meals altogether.^{ix} In [Lebanon](#) at the beginning of the COVID-19 pandemic, 85% of people reduced the number of meals they eat, but at the same time 85% of women were eating smaller portions, compared to only 57% of men. 66% of women started to eat lower quality food, compared to 43% of men.^x

Existing studies that take into consideration gender norms show strong ties—and often causal links—between gender equity and food security, especially as it relates to women’s access to their rights and participating in decision-making. Where data does exist, it shows powerful connections between gender equality and food security. Sometimes the data itself reveals the underlying belief that women matter in food only because of their role in unpaid care work, because that is the only sex-disaggregated data. For example, in [The World Bank Gender Data Portal](#) on food and women, the only sex-disaggregated food data is related to the number of women who believe, or do not believe, that a husband is justified in beating his wife when she burns the food. They also present data on whether or not women are allowed to make decisions about what food to cook.

Access and control to productive resources, such as land, water, livestock, seeds, or fertilizers, is a key contributor to food security. Studies in Malawi, Tanzania, and Nicaragua found that **gender norms defining women’s participation in income generation activities impact food security**.^{xi} As a matter of fact, 41 countries recognized men as the household’s head,^{xii} which limits women’s participation in income activities and spending decisions. A study in Senegal showed that **households in which women were employed had 11.3% lower probability of food insecurity**; in that same study, men’s employment made no difference to household food security.^{xiii} The intensity of women’s workloads are increasing but without a parallel increase on income.^{xiv} In addition, **lack of support from men in household tasks and childcare was associated with poor diets on women and children**.^{xv}

Worldwide, **women do 75% of the unpaid work** such as care and domestic tasks, and **women in rural areas spend around 14 hours a day on care work**.^{xvi} These examples show evidence to advocate for women’s participation in household and local decisions, and in equally sharing household responsibilities to reduce women’s workloads and increase food security. Also, a cluster-randomized controlled trial in Burkina Faso found that promoting and building skills on spousal communication

contributes to stunting reduction among children.^{xvii} Research proves that when women support to the household income, children's health improves, and **malnutrition is reduced by a 43% overtime.**^{xviii}

Women's participation in decision-making, still ruled by patriarchal norms, is a significant determinant in food security as well. For example, women that have land deeds may have no control over the decisions on its use^{xix}. **Land ownership is often a ticket to social inclusion,^{xx} but worldwide just 15% of the land is own by women^{xxi}** even though they constitute at least **43% of the agricultural labor force.**^{xxii} And the FAO determines that in places where women own land, it tends to be less land than men, or of lower quality^{xxiii}. In other cases, men and women own land together, but this does not imply that rights are equally enjoyed, and benefits are shared.^{xxiv} In fact, gender inequalities in agricultural settings are shown to limit the sectors' likelihood of supplying nutritious outcomes and suggest that the issue is not just surrounding consumption, but also quality of food and diet diversity.^{xxv} In a variety of low-income settings, women have less access to and control of land, livestock, agricultural assets, farmers services and technologies, decision making, and income.^{xxvi} Overall, **women's land ownership is connected to income growth and better child nutrition, but women are usually not even recognized as farmers**, so the services and technologies for farmers are not designed to meet their needs. On top of this, women might not have enough time to seek further education to participate in these processes, limiting their opportunities for employment, leadership, and negotiation. Another limitation is access to information; **women and girls are 26% less likely than men and boys to have a smartphone and/or mobile internet access**^{xxvii}

Studies also indicate that **gender equality has a strong relationship** not only on increasing the capacity of rural households to acquire coping mechanisms, but also **to reduce poverty and food insecurity.**^{xxviii} A CARE report demonstrated that the lack of coping mechanisms might push families to spend their stock seeds and savings. This impacts disproportionately women and girls, because the stressful food situation can lead to intimate partner violence. In other situations, women are forced into transactional sex as a coping mechanism for hunger, increasing their risk of sexual exploitation and abuse.^{xxix}

When women do have more equality in access to resources and decision making, this shows causal improvements in food security. In Cote d'Ivoire **an increase of 10% in female controlled crops corresponded with a household food consumption increase of 2%.** When men controlled the crops, a 10% increase in production only increased household food consumption by 0.6%^{xxx}. In Burundi, **investing in gender equality in agriculture brought a \$5 return for every \$1 invested, compared to a \$2 return for every \$1 invested in agriculture programs that ignored gender equality.**^{xxxi}

Women's empowerment is a route to improve nutrition, especially children's nutrition, as proven in a Nepal's study using the Women's Empowerment in Agriculture Index ([WEAI](#)).^{xxxii} Qualitative data showed evidence on a variety of countries on this association. In addition to this, we reviewed quantitative data to support the previous conclusions found among studies.

Methods

Because this research focuses on understanding global trends in gender equality and food security, the focus is on datasets that cover as many countries as possible. It moves beyond one or two specific contexts to examine the global space. As such, it is an innovative look at high level trends rather than a deep dive into contextual factors. The research team reviewed several possible datasets to run correlations and understand the relationship between food security and gender equality. The criteria for which datasets to explore were:

- Number of countries that were represented and the number of countries that were present and comparable in both indices.
- Recency—what was the most recent date of the data in the existing dataset.
- Lack of shared indicators. The research team avoided spurious correlations by picking indices that did not include indicators in common. (For examples, if each index included an indicator on women’s income, that would have increased the likelihood of correlations without showing an underlying connection between gender equality and food security.)

The primary results in this paper showcase the results of a regression analysis in 109 countries that were present in both The Gender Inequality Index from 2019 by the Human Development Report and the Food Security score from 2021 from The Economist. These were the two indexes that contained the most current data and the highest set of countries in common. The Gender Inequality values^{xxxiii} are determined based on reproductive health, empowerment, and labor market participation. These values range from 0, where men and women have equality, to 1, where one gender is highly unequal. In contrast, the Food Security scores^{xxxiv} are determined by affordability, availability, quality and safety, and natural resources and resilience. These scores range from 1 to 100, with 100 representing the highest possible food security.

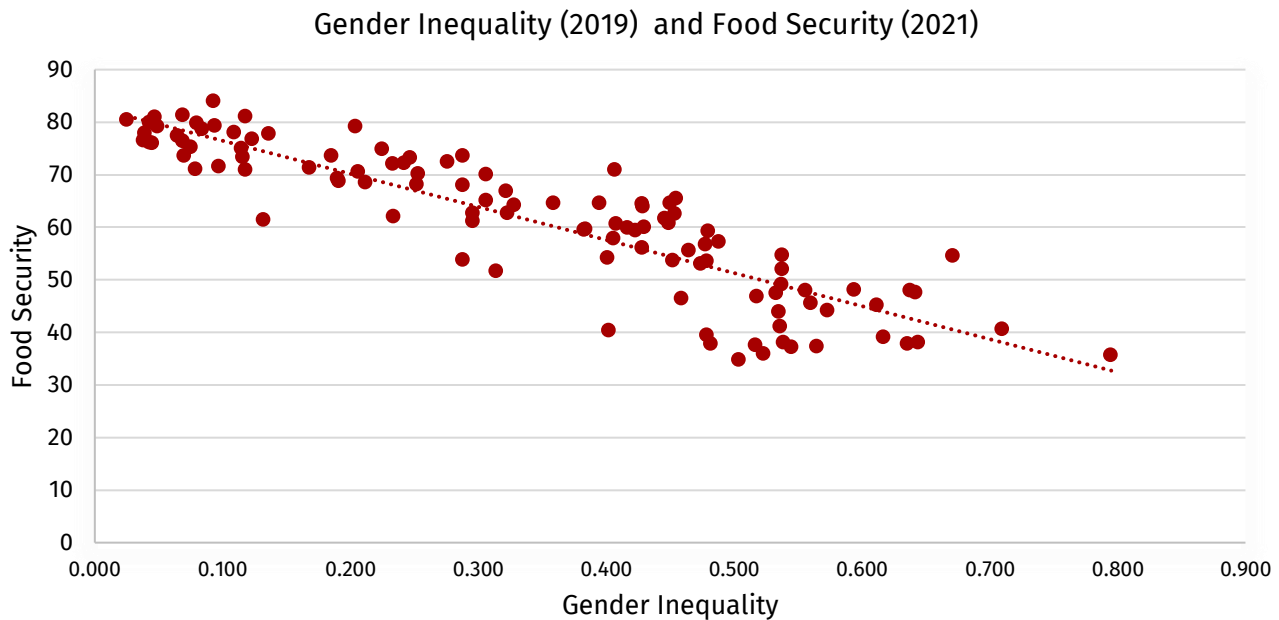
To triangulate the results, the research focused mainly in a regression analysis between [the gender inequality index](#) and the food security score [2021](#) from The Economist, both mentioned above. For confirmation of our findings, we also looked into other datasets such as the [prevalence of severe food security in the population](#) from The World Bank 2019, the food security score [2019](#) from The Economist, the [gender equality index 2021](#) from The World Population Review, the [global gender gap index 2020](#) from the World Economic Forum, the [SIGI 2019](#), and the [prevalence of moderate or severe food insecurity in the population 2020](#) from the FAO.

When looking at the variety of datasets, we prioritized recent data that covered the largest number of countries possible for the most global trends. For example, combining the 2019 gender inequality index from The World Bank and the 2020 prevalence of moderate or severe food insecurity from the FAO reduced the cohort was reduced to 69 countries, while the 2019 gender inequality index and the 2021 food security score from The Economist captured 109 countries.

Results

Graph one demonstrates the high correlation between gender equality and food security. Because the index measures gender **inequality**, a higher score on the index is less equality. In its most basic terms, as gender inequality rises in these 109 countries, food security drops.

Graph 1: The Gender Inequality Index by the Human Development Report (2019) and Food Security Score by The Economist (2021).



The graph shows a negative correlation, meaning that **as one variable increases (gender inequality) the other variable decreases (food security)**, with a correlation coefficient of -0.89 showing a fairly strong negative relationship between the two variables. An adjusted r-squared value of 0.78 shows that 78% of the variability observed in the target variable is explained by the regression model. This same analysis with the 2019 food security scores from The Economist and the previously mentioned 2019 gender inequality index, showing a similar result. This is that **as gender inequality decreases food security increases**. The regression was also done with the SIGI 2019 scores for gender inequality and the food security scores from 2021, showing a similar result among 87 countries.

Also, a regression analysis on 107 countries was run between the gender inequality index used above and the prevalence of severe food security in the population from The World Bank 2019. Similar results were found, with a correlation coefficient of 0.75 showing a moderate and fairly strong positive relation between both areas. The adjusted r-squared value of 0.56 shows that 56% of the variability observed in the target variable is explained by the regression model. All of these results combine strengthen the finding that as gender inequality increases, so too does food insecurity. This correlation between different indexes reinforces the conclusion that **at a global scale that gender equality and food security are highly linked**.

Discussion

Among the highest values of gender inequality are countries such as Yemen, Sierra Leone, and Chad, which overlap with one of the lowest food security and nutrition scores between 35.7 to 40.6. Just as these countries experience the most rapid and acute impacts of the current food crisis, there are also many more that will likely face the same outcome as food systems remain stressed. This might risk a simultaneous and dangerous collapse of food security in different regions of the world. Further, the consequences of the COVID-19 pandemic already forced a significant step backwards in gender equality,

with increased burden of domestic work on women and restricted opportunities for women's access to education and health.^{xxxv} These inequalities will further aggravate the food crisis that is already tangible in different countries.

The literature review argues that increasing women's economic participation and household decision-making is a strong solution to reduce poverty and improve nutritional outcomes. To further these conclusions, an increase of qualitative and quantitative research, across contexts, is needed to display the impact and relation of gender equity and food security and nutritional outcomes. There is also more research necessary on how agricultural gender gaps impact nutrition.^{xxxvi} Future research would benefit from adding women's intersectionality, beyond the agriculture sector, to encompass the remarkable realities affecting gender and impacting food access. Understanding how these two phenomena interact could build the foundations for creating and innovating disaster prevention and preparedness policies and interventions with a gender lens.^{xxxvii} As a start, the [BRIDGE](#) document emphasizes how women's lack of access to their most basic rights has an enormous weight on food security, since it places them in a position of pronounced disadvantage respecting global food systems and events such as climate change. For example, a study brings the importance of gender equality in its entirety into the conversation. One example shows that despite economic growth in India, many women and girls are still in a state of food insecurity due to diverse inequalities, such as restricted access to production assets, education, unpaid work, decision-making, and persistent problems such as HIV/AIDS⁷ and GBV⁸.^{xxxviii} These problems extend well beyond India; women are similarly impacted everywhere, and the restrictions imposed to them impact populations across the globe. For example, **the cost of GBV is 2% of the global gross domestic product.**^{xxxix}

Furthermore, the gender inequality index still has gaps in the food and agriculture space. It does not include land ownership or overall and agriculture decision-making. While that reduces the possibility of a spurious correlation that could arise if the different indexes are using the same variables, it also underscores how highly divided food and gender are in global thinking and global datasets. Even composite scores on gender equality overlook key food and agriculture variables. The creation of indexes that measure gender equity with more accuracy is still a challenge; as in the example previously mentioned, women may have land's deed but not participating in decision-making over it. This is a clear scenario demonstrating the importance of developing data to create indicators that can measure female decision-making that include a food security and agriculture area.

There are strong examples of progress to build on. The [WEAI](#) is one example of an index that brings together food, agriculture, and gender equality data. The [Global Food 50/50](#) project plans to reduce the knowledge gap by gathering key data on the different food systems' gender dimensions in order to provide data that will help secure a commitment to gender equality among food systems, as well as accountability from different food security donors, actors, and stakeholders. WFP⁹ and Gallup Inc., in collaboration with the FAO developed the Gender Equality for Food Security ([GE4FS](#)). This is intended to incorporate the FIES¹⁰ and the gender equality component through *item response theory* to measure the association between gender equality and food security.

Nonetheless, a clear message from the literature is that gender equality and food security cannot be reduced to just owning land and accessing the labor market. A major, if not the main, component is access

⁷ Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome

⁸ Gender Based Violence

⁹ World Food Programme

¹⁰ Food Insecurity Experience Scale

to basic rights like participating in decision-making, education, SRHS¹¹ and access to, for example, financial services (loans) and land rights, and agricultural skills. These are all areas with core gaps in gender equality. For example, **1 billion women are unbanked.**^{xi}

Conclusion

As women keep feeding the world, we must give them the right space in our data collection methods and analysis to make the gaps they encounter visible and work with women to find solutions that close those gaps. Women are a big portion of global food producers, and they are often the person in charge of feeding their families. But even so, gender norms and gender inequality put women's own food security at high risk—as well as creating significant risks for their families, communities, and countries. Put bluntly, here is what the findings say: **as gender inequality rises, people get less food to eat on a national scale.** This holds true across more than half the countries in the world.

This data is not intended to be definitive or causal. Rather, it shows a strong correlation at a global level between gender inequality and food insecurity. It implies that there are important insights to draw—and actions to recommend—if we look at gender and hunger data more consistently and holistically. Global datasets should be publishing sex disaggregated data on food—whether the focus of the dataset is on gender or on food. At the very least, it is time to update our global understanding of food security and gender inequality—similar to the [FAO report in 2010-2011](#) and [CARE's scoping paper](#) outlining the relationship between gender equality and food security. Gender transformative approaches will allow the global conversation to transform power dynamics and the different structures that keep reinforcing inequalities between men and women, especially when it comes to gender roles and food.^{xii}

Identifying and addressing the differences in gender roles, responsibilities and participation at the household level has the capacity to strengthen of food security globally, as well as the nutritional and health status of populations. For example, a CARE policy report expresses how the VSLA's¹² groups have helped women to transform their empowerment and independence by finding new ways to make money to bring food to the households. In the Philippines, women have been growing vegetables at their homes for a long time, but it was not until facing the unemployment caused by the COVID-19 pandemic that these vegetables became an important source of food security for their families.^{xiii}

Ultimately, **data analysis illustrates that the lower gender inequality is, the greater food security is.** Leaving women behind in crises and ignoring solutions designed for and by women leaves more room for new crises and worsens existing ones—not just for women, but for everyone. Women and gender equality must always be a part of solutions—no matter what sector—to identify the inequalities experienced and balance responsibility and opportunities for women and men that allow countries households to cope and adapt to the different contexts.

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¹¹ Sexual and Reproductive Health Services

¹² Village Savings and Loan Associations

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Appendix A

Global Dataset	Latest Year	Report(s)	Sex-Disaggregated Data Available on Food Security	Food Security Data Available
UN Women	2020	Dataset	Available	Available
Sustainable Development Goals Data Portal	2020	Dataset	Available	Available
Global Network Against Food Crises and Food Security Information Network	2020	Global Report on Food Crises. Joint Analysis for Better Decisions.	Data on women's anemia.	Data on women's anemia.
Data 2x		Website	Not available	Not available
Open Data Watch		Website	Not available	Not available
The World Bank	2019	Dataset	Not available	Available
Women Stats Project		Website		Not available
World Food Programme	2020	Dataset	Available	Available
Food and Agriculture Organization	2022	The State of Food Security and Nutrition in the World	Available	Available