



Women's Empowerment in Agriculture and Child Nutritional Outcomes in Rural Burkina Faso

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Abstract

Across developing countries, women play an important role both as producers of major food crops and in improving household nutrition. This research paper aims to assess the effect of improving women's empowerment on the nutritional status of children in rural Burkina Faso. Based on data from the 2014 Multisectoral Continuous Survey (EMC), the paper uses variables such as income control, access to land, autonomy in production decisions, access to credit and social group membership to compute a composite index of women's empowerment. Accounting for potential endogeneity of empowerment, the study adopts a dual-estimation approach that, first, uses average empowerment by stratum and, second, applies an instrumental variable. Results show a low baseline level of women's empowerment in rural areas, but an improvement in empowerment has a relatively high and positive correlation with children's nutritional outcomes. The study suggests that improving women's empowerment components will translate into significant gains in children's nutritional outcomes in rural households.

Introduction

Policies aimed at improving women's status and reducing inequalities are expected to improve not only women's well-being but also that of their children. Because women are typically responsible for childcare, they have a greater responsibility for and role in their nutritional status (Malapit and Quisumbing, 2014). Women make up almost two-thirds of the agricultural workforce and produce most of Africa's food. However, studies have shown that women own only about 2% of the world's land, or 15% of the land in sub-Saharan Africa (Doss et al., 2013). These figures show that women still have unequal access to land compared to men. This is an impediment especially in areas where agriculture is the main activity. As they are often not the owners of agricultural land, women in agricultural production areas are limited in their production decisions; there is a strong correlation in many societies between the decision-making power of an individual and the quantity and quality of property rights held by the individual (FAO, 2002).

Historically, land is considered the primary source of wealth, social status, and power. It is the basis of protection, nutrition, and economic activity, is the most important source of employment opportunities in rural areas, and an increasingly scarce resource in urban areas (FAO, 2002). Therefore, women's lack of power over land indirectly leads to a loss of resources in land use. Investment in agriculture is generally seen as an important opportunity to reduce malnutrition (Webb, 2013). Ultimately, better integration of women in agriculture could have beneficial effects on food availability and thus improve nutrition at the household level. Indeed, women's participation in agriculture has the potential to help shift control of household resources to them, which are then more likely to be directed toward child feeding and care (UNICEF, 2019). According to Doss (2011), there is evidence that if women held land in the same proportion as men, they would do as much as men did in terms of production. But they often do not have access to essential inputs such as land, credit, fertilizer, new technologies, and other resources. As a result, they are limited in their agricultural production, which reduces the nutrition availability for the family. In Burkina Faso, women's agricultural productivity is 20%–40% lower compared to men, and these differences are mainly due to lower use of productive inputs (Udry, 1996).

In the literature, four broad areas are identified as the main pathways through which agriculture can influence nutrition (Carletto et al., 2015; Webb, 2013; Hawkes and Ruel, 2008). These broad areas are: (i) food prices, (ii) income from agriculture, (iii) consumption of own production, and (iv) factors linked to gender. For the authors, the latter include issues such as women's social status and empowerment in agriculture, women's time, and women's health and nutritional status, all of which can be both influenced by their role in agriculture and affect their productivity in agriculture and their ability to care for their family and especially their young children. In the same way, for some authors empowering women is one of the ways in which agriculture impacts nutrition (Heckert et al., 2019; Ruel and Alderman, 2013). This paper focusses on how women's empowerment in agricultural activities could improve child nutrition outcomes in rural households. It then provides empirical evidence on the effect of empowerment on child nutrition outcomes in agricultural households in Burkina Faso.

According to Herforth et al. (2012), the burden of malnutrition is threefold. The first is the lack of energy and protein in the diet leading to starvation, reduced learning abilities, illness, and premature death. The second is micronutrient deficiency causing deficits, physical and cognitive impairments, anaemia, blindness, and weak resistance to various health risks. The last aspect is energy excess in diets causing overweight, obesity and chronic disease. Malnutrition continues to be an important aspect of public health problems and a major contributor to the reduction of economic growth, poverty differentials and the explanation of high rates of morbidity and mortality in developing countries (Pelletier et al., 1995). Malnutrition is estimated to be responsible for more than a fifth of the global disease burden in children under five years of age (Bhutta et al., 2010; Black et al., 2008) and for 45% of the 5.9 million deaths in children under five in 2015 (WHO, 2016). Malnutrition can also harm a child's economic prospects and, therefore, broader socioeconomic development in numerous ways (UNICEF, 2019.)

Studies have shown that reducing gender inequality is a significant step forward in addressing the famine problem and improving children's nutrition (Njuki et al., 2016). The reason is that women with better decision-making status are more likely to eat better themselves and thus take better care of their children by giving them higher quality diets. The empowerment of women, especially their empowerment in agricultural activities, can therefore be used as a catalyst in the reduction of child malnutrition. Thus, women's empowerment is considered crucial for improving nutritional outcomes (Malapit and Quisumbing, 2015; Malapit et al., 2015; Van den Bold et al., 2013; Bhagowalia et al., 2012). For Van den Bold et al. (2013), studies using direct and indirect measures of women's empowerment have largely demonstrated the importance of the link between women's empowerment dimensions and their own nutrition and that of their children. In the same way, Bhagowalia et al. (2012) found that in Bangladesh there is a positive link between women's participation in decision-making, their mobility, freedom of movement and attitude towards domestic violence, and the prevalence of stunting and minimum dietary diversity. In the case of Ethiopia, Fafchamps et al. (2009) found positive effects of female bargaining power on child nutrition and child education. In India, Shroff et al. (2011) found that measures of maternal autonomy (such as financial autonomy, participation in decision-making within the household, acceptance of domestic violence, and freedom of movement) were associated with positive infant feeding and growth outcomes. Deininger, Goyal and Nagarajan (2013) show that improving women's likelihood to inherit land improves their children's socioeconomic outcomes in India. By focussing on women's inheritance rights, the authors show that systematic relationships between women's asset ownership and socioeconomic outcomes can emerge due to systematic differences in preferences between males and females. Indeed, the authors' results indicate a robust increase in educational attainment of daughters, suggesting an alternative channel of wealth transfer which could influence household consumption.

The issue of good nutrition is related to other factors such as household poverty status and decision-making issues. In the case of poverty, the level of household income is primarily involved. In rural areas specifically, the main source of income remains agricultural activities. As such, it is a question of examining how farm income can affect the nutritional status of the household and especially that of children. However, only taking income into account is not enough to grasp the complexity of the problem as a person can have a large income but misuse it. As reflected in the triple burden of malnutrition in many countries, income can also be used to purchase processed foods, contributing to malnutrition and overweight or obesity due to the high cost of healthy food or lack of consumer awareness about the importance of a good diet (Ecker, 2019). That is where decision-making comes in.

Studies have shown that an improvement in the decision-making power of women is accompanied by a more favourable allocation of household resources to the benefit of children (Smith et al., 2003; Seebens, 2011; Bhagowalia et al., 2012; Nordman and Sharma, 2016). Pandey et al. (2016) report that women's empowerment and dietary knowledge play a crucial role in establishing the relationship between agriculture and nutritional status. Studies show that females attach higher value to family needs or children's welfare and thus devote a higher share of their resources to this, meaning that the extent to which females have control over assets will affect intrahousehold bargaining outcomes (Behrman, 1990; Strauss et al., 2000). In countries such as Cameroon, India, Kenya, Malawi and the Dominican Republic, women have been found to consistently devote higher proportions of their income to family needs than men (Strauss et al., 2000). Also, if mothers control a larger proportion of family resources, children tend to do better (Thomas, 1990). In South Africa, for example, pensions received by females rather than males affected girls' anthropometric status

(Duflo, 2003). Therefore, the analysis of children's nutrition is simultaneously linked to the level of income and the distribution of decision-making powers in the household.

Women's Empowerment, Nutrition Policies and Agriculture

Like most African countries, Burkina Faso is dominated by agriculture, which provides the bulk of household income and contributes to food and population nutrition security (PSSAR, 2017). In subsistence farming populations the agricultural harvest is both a source of food and of income for food purchases (Kaufmann, 2008). As a result, the various development policies and strategies have always given priority to the growth of the agricultural sector and to the improvement of the living conditions of the rural populations involved in this sector. Nutrition and agriculture are considered in the different country development plans, such as the Accelerate Growth Strategy for Accelerated Growth and Sustainable Development (SCAAD 2011–2015) and the National Plan for Economic and Social Development (PNDES 2016–2020). The PNDES, which is the most recent country strategic development policy framework, places strong emphasis on rural sector performance improvement with food and nutrition security as the main support (PNDES, 2016).

Agriculture in Burkina Faso employs more than 80% of the population and contributes to 30% of GDP (PSSAR, 2017). Despites this, the country faces recurring food crises and permanent food insecurity. As in most developing countries, the causes of the food crises are both structural and cyclical (Destombes, 2003). In addition, poverty is the main cause of food and nutrition insecurity among populations. In 2014, poverty affected 40.1% of the population of Burkina Faso, with an incidence of 47.5% in rural areas (INSD, 2016). The typical poor household in Burkina Faso lives in a rural area, is employed on a farm, has no or little formal education, and has more than six children. The household income structure is dominated by crop production (67%), followed by livestock production (31%) (PNDES, 2016). Agriculture provides 61.5% of the monetary income of farming households (IFAD, 2019).

By analyzing the nutrition policy landscape in Burkina Faso, Vanderkooy et al. (2019) find that most policies, across almost all policy areas, include nutrition in their general and/or specific objectives. The authors reported sixteen nutrition-relevant national policies currently in use in the country. Nutrition is featured most prominently in nutrition, health, and agriculture/food security policies. Thus, all these policies point to the importance of multisectoral coordination (Vanderkooy et al., 2019).

As part of its development plans, government has implemented several policies, strategies and programmes related to agriculture, food security and nutrition. These include the: National Health Development Plan (PNDS 2011–2020); Multisectoral

Nutrition Strategic Plan (PSMN 2017–2020); National Food and Nutrition Security Policy (PNSAN 2013–2025); National Nutrition Policy (PNN 2007, PNN 2016); Support Programme for Food and Nutrition Security, Sustainable Agriculture and Resilience in Burkina Faso (PASANAD 2017–2021); and Sustainable Agricultural Intensification Project for Food and Nutrition Security in Burkina Faso (PIDASAN 2018–2021).

To meet the challenge of recurrent food insecurity, at the national level the country adopted and implemented the National Nutrition Policy (PNN) in 2007, which was revised in 2016. The National Nutrition Policy (PNN) spells out the required nutrition-sensitive activities in agriculture, including small-scale irrigation, nutrition education, cultivation of nutritious legumes, and empowerment of women and their organizations through access to land and processing equipment (IFAD 2019). The PNN enabled the country to make significant progress in reducing malnutrition in 2009 with the establishment of a system for monitoring the nutritional situation through a regular national nutrition survey (ENN), called "rapid survey for assessment of the nutritional status of children under 5".¹ Indeed, according to the 2019 ENN, the prevalence of acute malnutrition (wasting or thinness) decreased from 11.3% in 2009 to 8.5% in 2018, and chronic malnutrition (stunting or shortness) decreased from 35.1% in 2009 to 17% in 2018 (MoH, 2020).

Although the management of acute malnutrition or emaciation (severe and moderate) has been a priority for the PNN, the prevention of chronic malnutrition or stunting has always been a challenge for Burkina Faso. In 2013, the country adopted a complementary policy called the National Food and Nutrition Security Policy (PNSAN), which aims to achieve sustainable food and nutrition security by 2025 (PNSAN, 2013). In line with the PNN, PNSAN aims to contribute to the fight against malnutrition in general and, more specifically, to chronic malnutrition. The overall goal is to guarantee equitable access by all people at all times to enough food and a balanced and healthy diet, and to contribute to poverty reduction, social peace, and sustainable rural development (IFAD, 2019).

Malnutrition, specifically chronic malnutrition in the context of recurrent food crises, is aggravated by the vagaries of the weather often forcing the country to seek help from development partners, civil society organizations and humanitarian actors. Thus, the Support Program for Food and Nutrition Security, Sustainable Agriculture and Resilience in Burkina Faso (PASANAD) was set up for 2017–2021 in the form of sectorial budget support and one-off projects aimed at improving the nutritional practices of poor households through a national strategic plan for infant and young child feeding

¹ The survey is conducted according to the SMART methodology: Standardized Monitoring and Assessment of Relief and Transition.

(IYCF).² This would result in actions and investments in favour of irrigated agriculture, small livestock, nutrition education and the provision of local nutritional inputs, in particular to improve food security and the incomes of vulnerable households. The overall goal of PASANAD is to contribute to poverty reduction in Burkina Faso, through improved governance in the food area, nutrition security and strengthening resilience.

Apart from the nutrition-related policies, the Government of Burkina Faso has implemented a programme for poverty reduction with the support of the World Bank: the Burkina Faso Social Safety Net Project.³ This programme is set up for poor households that benefit from direct cash transfers in regions with the highest rates of chronic poverty, malnutrition, and food insecurity. The project is designed to help the country to work towards more inclusive economic development that does not leave poor people behind. With an average of nearly eight members in a rural household, about 316,000 people would directly benefit from the project in the East, North, and Centre-East regions.

At the international level, in 2011 Burkina Faso joined the Scaling Up Nutrition (SUN) movement, which is based on the principle of the right to food and good nutrition for all. Created to end global undernutrition following the 2008 food crisis, SUN is a global movement comprising 60 countries around the world that seek to end malnutrition in all its forms. SUN, launched in 2010 as a one-of-a-kind movement according to its founders (43 countries worldwide), unites people in a collective effort to improve nutrition and is committed to understanding that good nutrition is the best investment for the future. Governments in different countries set priorities and plans that are supported by different stakeholders, including civil society, the United Nations, development partners, business enterprises and researchers.⁴ After joining the SUN movement in 2011, Burkina Faso Government's commitment to improving their nutrition status has been translated into in-depth policy reforms and several programmes and projects taking a multisectoral approach (Vanderkooy et al., 2019). Thus, a multisectoral strategic nutrition plan (2020–25) was developed in 2017 and a national food security policy (2017–2021) was endorsed. To expand the nutrition workforce for increasing interventions, a mass nutritionist recruitment policy was launched in 2017 with the aim to position at least one nutritionist in each region (Compaoré et al., 2020). Despite these substantial increases, the nutritional situation in Burkina Faso remains worrying as the situation remains a public health concern (Ouédraogo et al., 2020). According to Ouédraogo et al., 2020

² http://eeas.europa.eu/delegations/burkina_faso/index_fr.htm, accessed on 28 December 2017.

World Bank Support New Safety Net System in Burkina Faso, at https://www.worldbank.org/ en/news/press-release/2014/04/23/world-bank-safety-net-system-burkina-faso, accessed on 23 February 2021.

⁴ www.ScalingUpNutrition.org

even if the country has formulated several good policies, strategies and plans, the country is still struggling to implement an effective programmatic response to reduce the burden of all forms of malnutrition. There are huge nutrition gaps in Burkina Faso's food system because agricultural production is not often nutrition sensitive, as agriculture is still traditional and based on subsistence farming with a focus on staple grains (maize, sorghum, rice, and beans) rather than on producing a broader range of more diverse and healthier foods (animal foods, fruits, nuts, and vegetables) (Ouédraogo et al., 2020).

Empowerment of Women in Agriculture

A great number of studies show that women in developing countries are at a disadvantage compared to men in terms of land ownership rights (UNECA, 2017; FAO, 2010). Evidence shows that in most African countries, and in about half of Asian countries, women are disadvantaged by statutory and customary laws regarding access to and ownership of land and other types of property (UN, 2010; AfDB, 2015). The gender gap is particularly important in sub-Saharan Africa. Four key factors have been highlighted in recent studies to explain this gap: male preference for inheritance, male privilege in marriage, male bias in community programmes and state distribution of land, and men's bias in the land market (UN, 2010).

Gender inequality is pervasive in Burkina Faso (Malik, 2014). In 2014, Burkina Faso ranked 131 out of 149 countries in the United Nations Development Programme (UNDP) Gender Inequality Index (Malik, 2014), and ranked 147 out of 162 countries in 2019 (UNDP, 2019). Like many developing countries, Burkina Faso is a patriarchal and gerontocratic society influenced by sociocultural constraints (customs, religions, prohibitions). The "sociocultural weight of tradition" is said to be the largest obstacle to gender equality due to the traditionally patriarchal nature of Burkinabe society (Helmfrid, 2004). Evidence also suggests that the implementation of national policies and laws are hindered at the local level by deep-rooted sociocultural norms and practices, and a lack of resources. Nonetheless, women have the potential to actively participate in the country's development in a way that contributes to changing established rules and traditions (The Hunger Project, 2016b).

Women occupy a secondary position in society and are victims of discrimination and social injustices such as excision, levirate and forced marriage (JICA, 2013; Kevane and Wydick, 2001). Because of the patriarchal ideology and sociocultural practices, parents give priority to sons in all respects. These cultural and social norms create a climate where women and girls are discriminated against. Education, caste, religion, marital status, family income and housing conditions are the main factors that affect women's empowerment and development (Kevane and Wydick, 2001).

It is traditional to marry young in Burkina Faso, and early pregnancies and births resulting from these marriages pose many problems in, for example, women's health and education, and the promotion of women's socioeconomic position. Also, the tradition of levirate, which requires a widow to marry her belated husband's brother, is still in practice in rural areas. It is recognized that the division between men's and women's work is a deeply ingrained concept in Burkinabe society (JICA, 2013).

In many traditional systems in Africa, women often only have indirect access to land (for example, through their husbands, brothers, or fathers), which means they can access and use the land but do not have control over it, and they generally have no property rights (UNECA, 2017; Kevane and Gray, 1999). Women in western Burkina Faso often work on land controlled by men, but rarely exercise direct control over their land (only in exceptional circumstances). However, while married women from certain ethnic groups (for example, the Mossi) cultivate plots independently of their husbands, and exercise considerable control over what is planted as well as the income from these plots, women from other ethnic groups, such as the Bwa and Lobi, have lesser access rights, which shows the significant difference between ethnic groups in the country (Kevane and Gray, 1999).

Several empirical studies have shown that redistributing inputs between men and women in the household can potentially increase productivity (Kilic et al., 2013; Peterman et al., 2010; Udry et al., 1995). There is also considerable evidence that increased maternal control over resources improves children's outcomes, particularly in nutrition and education (Quisumbing, 2003; Quisumbing and Maluccio, 2003). This has been recognized and reflected in discussions held at the United Nations in the 2030 Agenda for Sustainable Development report (United Nations, 2017). Sraboni et al. (2014) find that improvements in women's empowerment are positively associated with caloric availability and dietary diversity within the household. Hence, there is the need to create well-targeted policies that will help women farmers increase yields and feed more hungry people.

Overall, women make up most of the extreme poor in Burkina Faso (Helmfrid, 2004) making them the most vulnerable in rural areas. The typical poor household in Burkina Faso is in a rural area, with members employed on a farm with no or little formal education, and the household has more than six children. The household income structure is dominated by crop production (PNDES, 2016) and agriculture provides 61.5% of the monetary income of these households (IFAD, 2019). Two-thirds of all food produced is for direct household consumption, usually through small-scale subsistence farming (The Hunger Project, 2016b). Households dependent on food crop production as their primary income source spend the highest portion of their budgets on food purchases compared to households whose main income source come from other livelihood activities (Murphy et al., 2017). As a result,

livelihood type is a potential indicator of poverty, considering that those who depend on earnings from staple crop production spend the highest proportion of their monthly expenditure on food (75%) compared to those with other primary livelihoods (WFP, 2014).

Data source

This research used data from the 2014 Continuous Multisectoral Survey (EMC) conducted by the National Institute of Statistics and Demography (INSD) of Burkina Faso.⁵ The EMC is nationally representative of households (agricultural and nonagricultural). A two-stage stratification procedure was used as sampling technique to select more than 10,000 households from around 900 enumeration areas in all 13 regions of the country. The EMC collected a wide range of information on households and individuals, including household demographics, food and non-food expenditures, food security, agricultural production (such as land tenure, inputs costs and fertilizers), the economic situation of households, the occupational situation of persons over 15 years of age, possessing assets, access to information and communication technologies (ICT), health, education, savings and access to credit, access to social services (clean water and electricity) and anthropometric information on children under five. As empowerment in the agricultural sector is measured in this study, we restricted our sample to farm households in rural areas with a woman present and with complete information on children's anthropometrics. This prevents the potential misclassification of individuals as empowered or not when they do not belong to agricultural communities (Malapit et al., 2015a).

Conclusion and policy implications

This study analyzed the effect of women's empowerment on child nutrition in rural Burkina Faso. We assumed that an improvement in women's empowerment is beneficial for the nutritional status of children. We used nationally representative data from the 2014 Multisectoral Continuous Survey to develop a composite measurement of empowerment and explored two techniques to deal with the potential endogeneity of empowerment. Children's nutrition outcomes were measured by the following anthropometrics: height-for-age z-score, weightfor-height z-score and weight-for-age z-score. Our results show that women's empowerment has a positive and high correlation with child nutrition outcomes. While child characteristics are related to their nutrition outcomes, women and households' characteristics are weakly correlated with nutrition outcomes. Even in

⁵ The 2014 EMC survey is part of the Living Standard Measurement Survey (LSMS) collection from the World Bank and represents the first one in Burkina Faso. Data are downloadable on the World Bank website at https://microdata.worldbank.org/index.php/home.

the literature, there is no consensus on the variables to be included in the measure of empowerment, but our results are convergent with several studies in different socioeconomic contexts.

Our results point to three recommendations. First, as results indicate that our measure of women's empowerment is highly correlated with children's nutritional status, we suggest that programmes targeting women's empowerment could be implemented at the community level to reach most women. Second, public policies aimed at improving empowerment should be integrated with measures facilitating women's access to land and other agricultural inputs by updating laws on land ownership and land inheritance for women. There are national policies and laws, but they are hindered at the local level by socio-culturally rooted norms and practices, and a lack of resources. Third, policies should ensure women's financial inclusion by providing easy access to credit through microfinance institutions. In addition, continual efforts should be made to promote women's and girls' education, which should include nutrition and agriculture courses in school curricula and literacy programmes. Education will provide women and girls with the knowledge and skills that are necessary for good nutrition.

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Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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