

Life expectancy in Africa: the key role of WOMEN's empowerment

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ABSTRACT

In Africa, life expectancy remains a major challenge due to complex socio-economic and health factors. Although progress has been made, disparities persist between countries, with high mortality rates and unequal living conditions. The objective of this study is to analyse the impact of women's empowerment on life expectancy in Africa, using a sample of African countries between 1990 and 2023. By applying two-stage least squares (2SLS) and the bootstrap method to ensure robust results, the analysis reveals a positive and significant effect of female employment on life expectancy. This effect is stronger in countries with legislation against domestic violence, suggesting that legal protection enhances the health benefits of empowerment. The impact is also more pronounced in countries with low female suicide rates, low prevalence of open defecation, and high food production, highlighting the role of mental health, sanitation infrastructure, and food security in shaping the outcomes of empowerment. These findings indicate that women's economic empowerment is a key driver of public health improvement, especially in contexts where institutional and socioeconomic conditions are supportive.

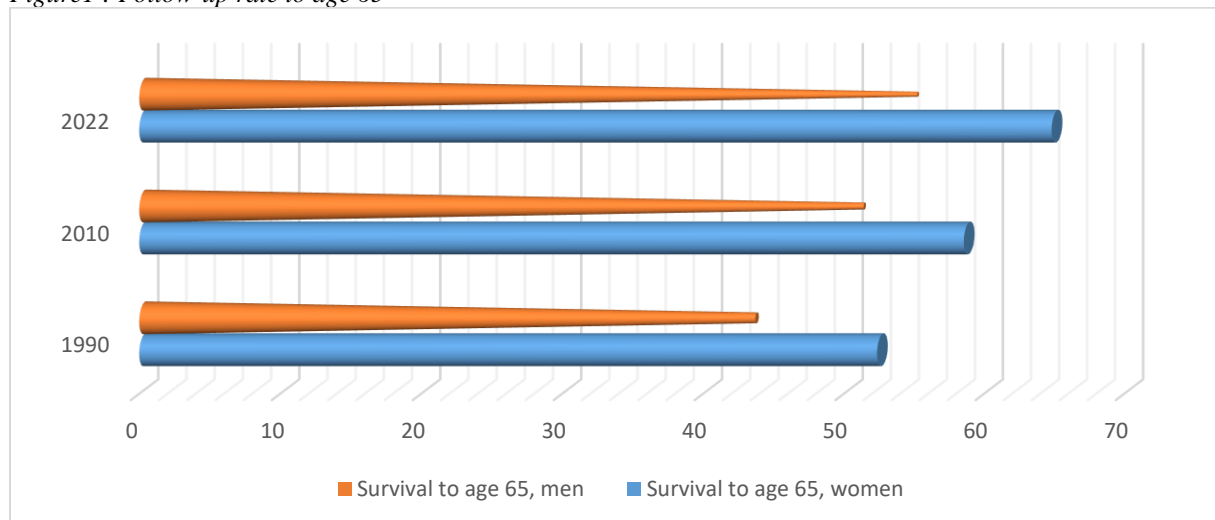
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1. Introduction

Life expectancy in Africa remains the lowest in the world, with an average of 64.5 years in 2022, well below the global average of 72.8 years (WHO, 2023). This situation is the result of several interconnected factors, mainly inadequate and poorly funded healthcare systems. Despite some progress, medical infrastructure remains inadequate and unevenly distributed. In many countries, the ratio of doctors per 1,000 inhabitants remains very low, often below 0.5 (WHO, 2021), and primary healthcare is difficult to access for a large proportion of the population. In addition, Africa continues to struggle with communicable diseases such as HIV/AIDS, malaria and tuberculosis, while facing a rise in poorly managed non-communicable diseases (UNDP, 2021). Women are particularly vulnerable (as shown in Figure 1 below), not least because of the inadequacy of maternal and reproductive health services.

More than 200,000 women die each year from causes related to pregnancy and childbirth, many of these deaths being preventable (UNFPA, 2022). In addition, African women have to cope with heavy domestic burdens, which affects their well-being and reduces their access to healthcare (Kabeer, 2019). Disparities are also marked by regional differences: rural areas or informal urban neighbourhoods, where health infrastructures are particularly deficient, have higher mortality rates (World Bank, 2021). Finally, these health deficits not only affect life expectancy, but also hinder the continent's economic and human development. A population whose longevity is reduced does not benefit from investment in education and training, thus limiting its productive potential (ECA, 2022). In addition, the COVID-19 pandemic has exacerbated these vulnerabilities, further disrupting access to essential services and increasing poverty, with long-term consequences for life expectancy in Africa (AU, 2021).

Figure 1 : Follow-up rate to age 65



Source: author.

The economic empowerment of women is recognised worldwide as an essential lever for sustainable development, poverty reduction and improved health. In several countries in Asia and Latin America, this strategy has led to significant progress. In India, for example, microfinance programmes run by the Self-Employed Women's Association (SEWA) have increased women's access to financial resources, improving their income, food security and access to healthcare (Cheston & Kuhn, 2002). In Brazil, the Bolsa Família programme, by transferring income to women, has helped to reduce infant mortality and improve access to healthcare (Lindert et al., 2007). In Africa, several initiatives confirm the transformative potential of female empowerment. In Kenya, studies by the World Bank (2017) show that women's access to micro-entrepreneurship programmes increases household income, boosts spending on healthcare and improves child nutrition. In Ethiopia, cash transfer programmes targeting women have reduced the risk of malnutrition and increased prenatal consultations (Berhane et al., 2014). These effects have a direct impact on reducing avoidable mortality and therefore on increasing life expectancy.

The economic empowerment of women could therefore represent a strategic solution in Africa to the persistent shortage of life expectancy. By strengthening their economic power, women become key players in social change, capable of improving the health of their families, boosting school enrolment and supporting the resilience of communities in the face of economic shocks. Drawing on the successes observed in other regions of the world and adapting these approaches to African realities, with the support of coherent public policies, would enable African social and health systems to be transformed in a sustainable way (UNDP, 2016; FAO, 2018; OECD, 2020).

The study represents a significant advance in understanding the links between women's economic empowerment and life expectancy in Africa. It uses advanced econometric tools, such as fixed-effects models, instrumental variable methods (2SLS) and the Bootstrap method for robustness analyses. It explores in depth the link between women's economic empowerment and life expectancy, incorporating not only the individual effects of the variables, but also the complex interactions between access to economic resources, social inequalities, living conditions and public policies. Using a representative sample of African countries and up-to-date data, this research offers a nuanced and contextualised reading of the African reality. It thus makes it possible to identify concrete and well-founded avenues for strengthening public health and gender policies on the continent.

The rest of the paper is structured into three main parts. A detailed literature review is carried out to analyse previous research on the links between women's empowerment and life expectancy (in 2). We then present the methodological tools used in the study (section 3). Finally, the results on the effects of women's economic empowerment on life expectancy in Africa are presented and discussed (in 4).

2. Women's empowerment and life expectancy: lessons from the literature

This section summarises the theoretical and empirical findings from the literature, focusing on the link between women's empowerment and life expectancy at birth.

2.1. Theoretical lessons from the literature on the relationship between female empowerment and life expectancy at birth

Empowering women has a structuring effect on life expectancy through several theoretical channels. According to human capital theory (Becker, 1964), women's education improves their knowledge of health,

nutrition and hygiene, which benefits the whole household. The theory of epidemiological transition (Omran, 1971) supports this idea by showing that social transformations, in particular the education and empowerment of women, favour the transition from a high-mortality regime to a low-mortality regime. In addition, empowered women are often more attentive to prevention and access to healthcare, thereby helping to reduce infant and maternal mortality. This dynamic contributes to the overall increase in life expectancy in African countries, particularly in contexts where gender inequalities are structural.

The theory of endogenous growth (Lucas, 1988; Romer, 1990) emphasises the importance of the accumulation of female human capital as a driver of development. An educated and economically active woman invests more in her children's health and promotes responsible family planning, contributing to a better demographic and health balance. Furthermore, the life cycle theory (Modigliani & Brumberg, 1954) suggests that women with greater decision-making power adopt long-term consumption patterns, favouring investment in health. Empowering women can therefore act as a fundamental lever in public health policies, stimulating both demand for health services and their effectiveness, leading to a lasting improvement in life expectancy.

2.2. Empirical findings from the literature on the relationship between female empowerment and life expectancy at birth

Several empirical studies have highlighted the positive effects of women's empowerment on their life expectancy, particularly in developing countries. In sub-Saharan Africa, Ogundari and Awokuse (2020) analyse the period 1995-2018 using a dynamic panel model (GMM) and show that women's access to the labour market improves their health well-being. Similarly, Jayachandran (2020), using data from 52 developing countries between 2000 and 2019 and a multilevel model, shows that women's education reduces maternal and infant mortality rates. In Latin America, Santana et al (2022), using multivariate regressions on 34 countries between 2000 and 2020, demonstrate that equal access to education and employment improves women's life expectancy. This research shows that education, economic autonomy and inclusive policies are powerful levers for improving women's health and longevity.

Despite these encouraging results, some research highlights the contextual limits of these effects. Over the period 1990-2019, Klasen and Pieters (2020) use a time series analysis to show that female employment in the informal sectors does not significantly benefit women's health in South Asia, due to precarious working conditions. In Africa, Chant and Sweetman (2021) use demographic survey data from 15 countries between 2005 and 2020 to identify an overload of domestic and professional work linked to economic empowerment, which hampers access to healthcare. Cornwall and Edwards (2022), in a qualitative study of sub-Saharan Africa, emphasise the weight of discriminatory social norms. Finally, Yaya et al (2023), using structural equation models applied to 24 African countries (2000-2022), emphasise that the impact of empowerment is reduced in contexts where health infrastructures are inadequate.

3. Methodology

This section details the methodology used to analyse the effect of women's empowerment on life expectancy, specifying the models, econometric techniques and data chosen.

3.1. Model of study

The empirical model used in this study, which assesses the effects of various factors on women's life expectancy in Africa, is based on Grossman's (1972) health production function. This approach, used to analyse the impact of socio-economic, environmental and institutional variables on health, is inspired by the work of Azam et al. 2023, and can be expressed as follows:

$$espe_vie_fem_{i,t} = \beta_0 + \beta_1 fem_salariees_{i,t} + \beta_2 production_alim_{i,t} + \beta_3 taux_suicid_fem_{i,t} + \beta_4 sanc_hancel_sex_{i,t} + \beta_5 mort_avc_{i,t} + \beta_6 import_arme_{i,t} + \beta_7 fbcf_{i,t} + \beta_8 depense_pub_{i,t} + e_{i,t} \quad (6)$$

3.2. Econometrics techniques and data

In this section, we begin by outlining the estimation techniques used, followed by a detailed description of the data used for the analysis.

3.2.1. Econometrics techniques

The use of instrumental variable double least squares (2SLS) and the bootstrap method to analyse the effects of female empowerment on life expectancy in Africa is justified by their complementarity. Indeed, the

double least squares (2SLS) method, developed by Theil (1953) and Basman (1957), makes it possible to resolve endogeneity problems, which arise when the main explanatory variable, in this case women's empowerment, is correlated with the error term. This problem is common in studies where the causality may be two-way, as is the case between women's economic participation and their life expectancy. For example, a higher life expectancy could also have a positive influence on women's integration into the labour market. According to Angrist and Krueger (1991), the use of instrumental variables is necessary to isolate the exogenous variation of an endogenous variable in order to obtain unbiased estimates. In this context, the 2SLS method is based on the use of instruments, i.e. variables correlated with women's empowerment but not directly with life expectancy. The instruments make it possible to identify the real causal impact of empowerment. As Stock and Yogo (2005) show, the validity of the instruments is crucial to avoid problems of weak instruments, which could bias the estimates. Thus, the application of 2SLS in this study ensures more robust and reliable results, by addressing biases related to omitted variables and simultaneity.

The bootstrap method, introduced by Efron (1979), is used to improve the precision of estimates, particularly when the traditional assumptions of homoscedasticity and normality of errors are difficult to verify. In contexts such as Africa, where data is often heterogeneous and influenced by variable socio-economic conditions, traditional methods can produce unreliable confidence intervals. The bootstrap makes it possible to overcome these limitations by generating several substitution samples from the initial data and recalculating the estimates for each sample. This method is particularly useful for estimating the empirical variance of coefficients and obtaining robust confidence intervals, as highlighted by Horowitz (2001) and Davidson and MacKinnon (2006). In the absence of ideal error distributions, the bootstrap improves the robustness of the results by testing their stability and significance empirically. This is essential for confirming the relationships observed with the 2SLS and reinforcing the credibility of the conclusions.

3.2.2. Data

This study analyses the effects of women's empowerment on life expectancy in Africa over the period 1990-2023. The economic, social and political empowerment of women plays a decisive role in improving health and well-being. In Africa, where poverty, gender inequality and poor access to infrastructure persist, increasing women's access to employment, health and education is a lever for increasing life expectancy. The analysis covers the continent's regional disparities and is based on data from the World Development Indicators (WDI) and Worldwide Governance Indicators (WGI), guaranteeing consistency and reliability.

The dependent variable is women's life expectancy at birth, a key indicator of well-being, reflecting the impact of socio-economic and health conditions (World Bank, 2020; Bloom and Canning, 2021). The main variable of interest is the proportion of employed women, illustrating women's economic empowerment, promoting their access to health services and improving their life expectancy (Duflo, 2012; Klasen, 2018). Control variables include: (i) food production index (base 2014-2016 = 100), (ii) female suicide rate (per 100,000 female inhabitants), (iii) sanctions against sexual harassment (WGI institutional score), (iv) stroke mortality (per 100,000), (v) value of arms imports (constant USD), (vi) gross fixed capital formation (% of GDP), and (vii) public spending on health (% of GDP). These variables reflect the socio-economic, health, institutional and security conditions that can influence female longevity. The table below provides descriptive statistics for the study variables.

Table 1 : Descriptive statistics for the study

Variables	Definitions	Obs	Mean	Std. Dev.	Min	Max
espe_vie_fem	Life expectancy at birth for women	1836	59.893	8.755	15.663	82
female_employees	Proportion of female employees	1836	24.457	23.908	0.625	92.299
food production	Food production	1836	83.48	26.14	15.47	183.45
Female suicide rate	Female suicide rate	1836	4.577	3.577	0.7	39.5
Sanc_hacel_sex	Penalties for sexual harassment in the workplace	1836	0.34	0.474	0	1
Mort_avc	Stroke mortality	1836	24.796	4.559	13.9	48.1
Import_arm	Importation of firearms	1836	51087146	1.860e+08	0	2.911e+09

Fbcf	Gross fixed capital formation (investment)	1836	20.526	7.82	-2.424	93.547
Depense_pub	Public spending on health	1836	106.473	14.266	45.28	200.971

Source: author.

4. Results and discussion

Here we present the results of the initial analysis, which examines the direct relationships between the variables (in 4.1.). We then take the study a step further by taking into account factors that could influence the effect of women's economic empowerment on life expectancy in Africa (in 4.2.). Finally, we present the results of the robustness analyses (4.3.).

4.1. Basic analysis of the effects of women's empowerment on life expectancy in Africa

This table presents the results of the basic analysis of the effects of women's empowerment on life expectancy in Africa using the double least squares method with instrumental variables.

Table 2 : Basic analysis of the link between women's empowerment and life expectancy in Africa

VARIABLES	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
	eq1	eq2	eq3	eq4	eq5	eq6	eq7	eq8
	espe_vie_f em	espe_vie_f em	espe_vie_f em	espe_vie_f em	espe_vie_f em	espe_vie_f em	espe_vie_f em	espe_vie_f em
women_salaried	0.415*** (0.0205)	0.344*** (0.0199)	0.354*** (0.0176)	0.358*** (0.0172)	0.350*** (0.0176)	0.363*** (0.0208)	0.360*** (0.0206)	0.363*** (0.0212)
production_alim		0.0904*** (0.0080)	0.0977*** (0.0069)	0.0672*** (0.0076)	0.0680*** (0.0075)	0.0643*** (0.0082)	0.0591*** (0.0081)	0.0586*** (0.0081)
suicide_rate_fem			-1.142*** (0.0512)	-1.079*** (0.0491)	-0.892*** (0.0740)	-0.926*** (0.0802)	-0.958*** (0.0790)	-0.984*** (0.0819)
sanc_hacel_sex				4.355*** (0.380)	4.213*** (0.379)	4.410*** (0.408)	4.383*** (0.402)	4.185*** (0.393)
mort_avc					-0.194*** (0.0525)	-0.182*** (0.0546)	-0.133** (0.0542)	-0.146*** (0.0537)
import_arm						-2.85e- 09** (1.13e-09)	-3.24e- 09*** (1.11e-09)	-3.20e- 09*** (1.11e-09)
fbcf							0.120*** (0.0206)	0.114*** (0.0208)
depense_pub								0.0440*** (0.0133)
Constant	49.75*** (0.545)	43.94*** (0.639)	48.32*** (0.569)	48.98*** (0.553)	53.10*** (1.249)	53.05*** (1.278)	50.05*** (1.346)	45.95*** (1.968)
Comments	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,836
R-squared		0.190	0.381	0.419	0.439	0.416	0.433	0.431
Underidentification test (Anderson canon. corr. LM statistic)	343.497	287.010	293.284	295.179	279.931	227.519	226.799	225.761
Chi-sq(1) P-val	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Weak identification test (Cragg-Donald Wald F statistic)	422.092	339.634	348.280	350.769	329.210	258.712	257.636	256.152
Sargan statistic (overidentification test)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: author.

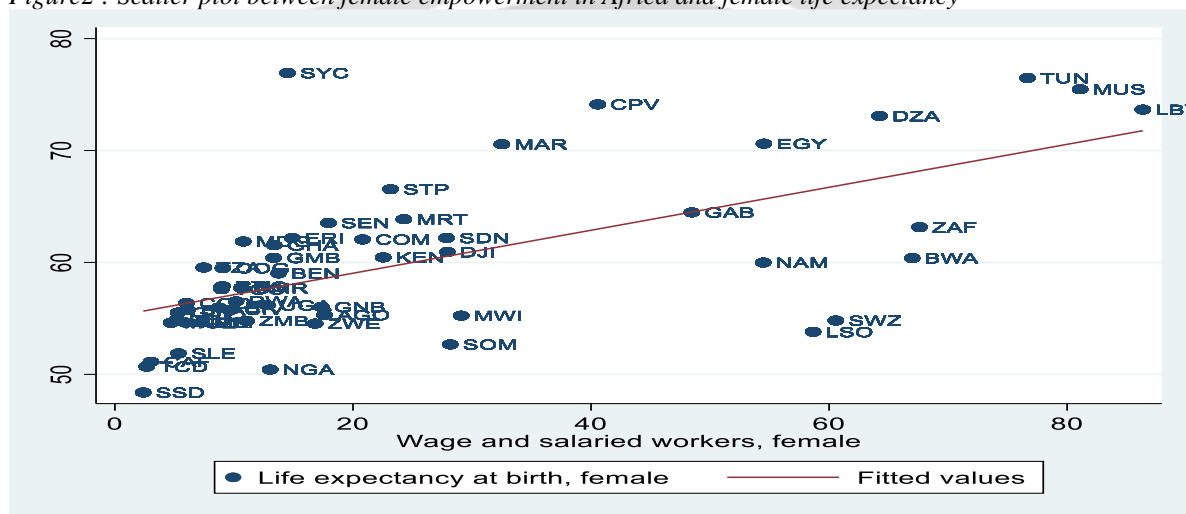
The basic analysis presented in Table 2 explores the link between female empowerment and life expectancy in Africa, using two-stage least squares (2SLS) estimation. The results indicate that an increase in the

proportion of employed women is systematically associated with a significant increase in women's life expectancy in the different models (coefficients between 0.344 and 0.415), suggesting that women's economic empowerment has a positive impact on their life expectancy. The effects remain robust across the different specifications.

The inclusion of additional variables such as food production and the female suicide rate also shows significant links. For example, an increase in per capita food production is associated with an increase in women's life expectancy (coefficients between 0.059 and 0.097), underlining the importance of dietary conditions in women's well-being. On the other hand, the female suicide rate shows a negative and significant effect, where a reduction in the suicide rate improves life expectancy (coefficients between -0.892 and -1.142). Other variables, such as sanctions for sexual harassment and public spending, also show significant impacts. Sanctions for sexual harassment have high positive coefficients, ranging from 4.213 to 4.355, which suggests that stricter measures against gender violence contribute to a better life expectancy. Public spending also has a positive effect, albeit a more moderate one, with a coefficient of 0.0440 in the final model.

The statistical tests reinforce the validity of the results: all the under-identification and weak identification tests are significant (p-values close to 0.000), which indicates that the instruments used in the models are appropriate. The Sargan over-identification test also confirms the robustness of the instruments, with p-values equal to zero in all cases.

Figure2 : Scatter plot between female empowerment in Africa and female life expectancy



Source: author.

Evidence shows that empowering women, through access to education, employment and better social conditions, has a positive effect on their life expectancy (Duflo, 2012; Kabeer, 2016). When they have economic resources and greater decision-making power, women are more inclined to invest in their health and that of their families, which improves their general well-being (Sen, 1999). Bouis et al (2018) also point out that empowerment in the agricultural sector contributes to food security, reducing malnutrition and promoting longer, healthier lives. In many African countries, obstacles such as early marriage, domestic violence and unequal access to healthcare limit the benefits of empowerment (UNICEF, 2022; World Bank, 2022). Even when women gain access to education and work, structural inequalities hold back gains in life expectancy. In countries that have adopted active policies in favour of gender equality and public health, such as Rwanda and South Africa, female life expectancy exceeds 70 years (WHO, 2023; UNDP, 2021).

4.2. Effects of women's empowerment on life expectancy in Africa: Robustness analysis

This table presents the results of the robustness analysis of the effects of women's empowerment on life expectancy in Africa.

Table3 : Robustness analysis

VARIABLES	Legislation on domestic violence		Female suicide rate		Practising open defecation		Food production		BOOTSTRAP
	Absence	Presence	High	Low	Low	High	Low (< 70%)	High (≥ 70%)	
	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	
	eq1	eq2	eq3	eq4	eq5	eq6	eq7	eq8	Eq9
	espe_vie_fem	espe_vie_fem	espe_vie_fem	espe_vie_fem	espe_vie_fem	espe_vie_fem	espe_vie_fem	espe_vie_fem	espe_vie_fem
female_employees	0.229*** (0.0239)	0.490*** (0.0464)	0.250*** (0.0191)	0.402*** (0.0329)	0.418*** (0.0371)	0.281*** (0.0272)	0.273*** (0.0408)	0.387*** (0.0249)	0.184*** (0.0062)
production_alim	0.0849*** (0.00850)	0.0804*** (0.0206)	0.0174 (0.0132)	0.0579*** (0.0106)	0.0452*** (0.0152)	0.0648*** (0.00939)	0.172*** (0.0182)	0.0992*** (0.0128)	0.0998*** (0.0064)
suicide_rate_fem	-0.634*** (0.0825)	-1.577*** (0.233)	-0.532*** (0.0689)	-2.569*** (0.323)	-1.562*** (0.185)	-0.621*** (0.0859)	0.123 (0.266)	-1.032*** (0.0946)	-0.542*** (0.0642)
sanc_hacel_sex	3.324*** (0.495)	3.303*** (0.934)	4.818*** (0.464)	3.803*** (0.561)	1.242* (0.691)	5.087*** (0.512)	1.986*** (0.643)	4.564*** (0.477)	2.852*** (0.299)
mort_avc	-0.202*** (0.0561)	-0.217* (0.121)	-0.549*** (0.0488)	0.265*** (0.0937)	0.111 (0.122)	-0.271*** (0.0570)	-0.320*** (0.0998)	-0.181*** (0.0646)	-0.312*** (0.0406)
import_arm	3.33e-09*** (1.24e-09)	-1.06e-08*** (2.48e-09)	1.44e-09 (2.06e-09)	-5.15e-09*** (1.48e-09)	-6.64e-09*** (1.64e-09)	3.67e-09** (1.69e-09)	1.95e-09 (1.80e-09)	-4.85e-09*** (1.38e-09)	2.97e-09*** (8.12e-10)
fbcf	0.140*** (0.0199)	0.0813 (0.0643)	0.141*** (0.0271)	0.122*** (0.0270)	0.228*** (0.0419)	0.0939*** (0.0256)	0.101*** (0.0327)	0.146*** (0.0272)	0.141*** (0.0152)
depense_pub	-0.0308** (0.0126)	0.256*** (0.0435)	0.0442*** (0.0143)	0.0467** (0.0200)	0.121*** (0.0268)	-0.00177 (0.0152)	-0.0701*** (0.0158)	0.0989*** (0.0181)	-0.0169* (0.0099)
Constant	53.98*** (1.917)	22.71*** (6.981)	60.88*** (1.952)	40.22*** (3.375)	33.50*** (5.220)	53.08*** (1.971)	54.47*** (2.688)	35.37*** (3.007)	55.05*** (1.307)
r2									0.612*** (0.0161)
Comments	1,347	489	523	1,313	600	1,236	552	1,284	1,836
R-squared	0.583		0.635	0.403	0.076	0.482	0.657	0.238	0.612

Source: author.

Overall, women's economic empowerment, measured by their employment rate, has a significant and positive effect on life expectancy in Africa. This effect is stronger in countries with legislation against domestic violence (0.490), compared to those without such laws (0.229). This suggests that legal protection for women enhances the effectiveness of their economic participation on health outcomes by creating a more supportive environment for their well-being. According to Klugman et al. (2019), the existence of laws against violence towards women fosters a climate of safety and respect for rights, enabling women to invest sustainably in their own health and that of their households. Furthermore, Duflo (2012) notes that women's economic empowerment is only truly effective when accompanied by institutions that guarantee their fundamental rights.

Regarding female suicide rates, the impact of women's employment on life expectancy is greater in countries with low suicide rates (0.402) than in those with high rates (0.250). This can be interpreted as an indication that, in contexts where women's mental health is less compromised, the benefits of economic participation are more likely to translate into improved life expectancy. Conversely, environments marked by psychological distress partially limit these gains. According to Canetto and Sakinofsky (1998), a mentally healthy environment enhances self-esteem and resilience both key factors in harnessing the benefits of economic empowerment. More recently, Melesse et al. (2022) emphasize that women's mental health is a key determinant of their agency, especially in African countries where mental health services are often inaccessible.

With regard to open defecation, the effect of female employment is more pronounced in countries where the practice is less common (0.418), compared to those where it is widespread (0.281). This finding suggests that the positive effects of women's economic empowerment on public health are amplified in contexts with better sanitation infrastructure, which facilitates the conversion of income and autonomy into tangible health gains. According to Spears (2013), the lack of adequate toilet facilities is a major contributor to disease and malnutrition, limiting health improvements even when incomes rise. Complementing this, Hathi et al. (2017) show that women living in areas with better sanitation conditions benefit more from their economic empowerment, as they are able to direct their resources towards productive and health-related investments.

Finally, in terms of food production, the impact of female employment is greater in countries with high food production (0.387), compared to those with low production levels (0.273). This suggests that in contexts of food security, women are better able to leverage their economic activity to improve living and health conditions—likely due to better access to nutrition and healthcare services. According to the FAO (2020), a context of strong food availability allows women to better utilize their income to improve household nutrition. Moreover, Quisumbing and Meinzen-Dick (2001) indicate that rural women, when provided with sufficient economic and food resources, play a key role in reducing child malnutrition and improving health outcomes.

The bootstrap results confirm the robustness of this relationship, although the effect is slightly weaker. These findings highlight the importance of integrating women into economic dynamics in order to improve health and longevity across the continent.

Conclusion

The aim of this study is to analyze the effect of women's economic empowerment on life expectancy in Africa, in a context where life expectancy remains relatively low. Using a sample of African countries over the period 1990–2023 and applying robust methods (2SLS and bootstrap), the results reveal a positive and significant impact of female employment on life expectancy. This effect is stronger in countries with legislation against domestic violence, where legal protection enhances the health impact of empowerment. It is also more pronounced in countries with lower female suicide rates, lower prevalence of open defecation, and higher food production—demonstrating that the effects of empowerment are conditioned by mental health, sanitation infrastructure, and food security. These results confirm that women's empowerment contributes sustainably to improving public health, particularly in favorable institutional and socio-economic contexts.

These findings illustrate the links between empowering women and improving life expectancy in Africa, across various socio-economic settings. To maximize the effects of women's empowerment on life expectancy, African governments should:

(i) Adopt strict legislation against domestic violence to support women's economic empowerment. This includes implementing laws that ensure legal protection, along with support centers and psychological services. Awareness campaigns and regular training for law enforcement should reinforce this legislation.

(ii) Invest in improving sanitation infrastructure in both rural and urban areas, with particular emphasis on the construction of toilets and access to clean water. Public-private partnerships should be established to ensure sustainable financing.

(iii) Support women-led agriculture, notably through targeted subsidies for agricultural equipment and training in sustainable farming techniques. This should be complemented by micro-insurance programs to secure harvests and promote economic stability for rural women.

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