Received 7 August 2023
Revised 23 September 2023
20 October 2023
12 November 2023
Accepted 15 November 2023

The welfare of Ghanaian women in trade: the role of English and French language literacy

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Abstract

Purpose – The study aims to assess the effect of English and French language literacy on the welfare of Ghanaian women in trade. Also, this study analyses the geographical variations of such effects from rural to urban areas.

Design/methodology/approach – Using the latest living standards survey data, the standard two-stage least squares instrumental variable approach was used to estimate the causal effects.

Findings – The results show that Ghanaian women in trade who are both English and French literate or only English literate are able to improve their welfare significantly relative to their fellows who are illiterate in both English and French or only English, whilst those who are solely French literate do not experience any significant improvement in welfare from trade compared with their counterparts. From the heterogeneous analysis, the findings indicate that the effect is significantly concentrated amongst rural traders but insignificant amongst urban traders.

Practical implications – The findings of this study inform government and policymakers to consider the effectiveness of the free senior high school (SHS) education policy in improving English and French language literacy and the welfare of women in Ghana. It also informs educational institutions on the importance of adult education in English and French, especially amongst women.

Originality/value – The study quantitatively estimates the effect of English and French language literacy on the welfare of Ghanaian women in trade by employing an instrumental variable approach to assess the causal effect. Uniquely, the study finds that language literacy is a significant tool in improving the welfare of rural women engaged in trade in Ghana.

Keywords Welfare, English language literacy, French language literacy, Trade, Ghana

Paper type Research paper

1. Introduction

Verbal communication remains the predominant form of communication in contemporary life. For the listeners to effectively understand the speaker's message and provide thoughtful responses and actions, they need to understand the language used by the speaker. When this is impossible, a linguistic barrier or restriction arises. Language is an important factor for traders in Ghana, as it can either facilitate or hinder communication, effective bargaining, exchange and cooperation (Ferro and Ribeiro, 2016; Egger and Lassmann, 2012). Local traders in Ghana can reasonably interact with one another in their native tongues, but the same cannot be said for other languages, particularly French and English (Fidrmuc and Fidrmuc, 2016).

Journal of Humanities and Applied Social Sciences
Vol. 6 No. 1, 2024
pp. 38-54
Emerald Publishing Limited
2632-279X
DOI 10.1108/JHASS-08-2023-0091

Ghana has a great linguistic variety, with diverse indigenous and foreign languages serving different purposes at different times (Abugre and Debrah, 2019). Ghana is home to 84 established languages out of which 73 are indigenous, 10 are non-indigenous and one is extinct (Eberhard *et al.*, 2023). English serves as the official language for instruction in all schools and is also the language of business. However, many Ghanaians also speak one or two indigenous languages besides their native language, such as Akan, Dagbane, Ewe, or Ga. Some traders also use Hausa, a Nigerian language, as a trade language when trading with people from northern Ghana (Awedoba, 2006). Furthermore, bordered by Francophone countries, several Ghanaians are fluent in French, underscoring the critical significance of multilingualism in trade within Ghana.

The Ghanaian economy is dominated by traders, with women forming a higher percentage amongst the traders (Ghana Statistical Service (GSS), 2018). Since the late 1970s, women have consistently outnumbered men in Ghana (World Bank, 2023). In 2017, women formed 51.5% of the total population (GSS, 2018), and the latest population and housing census shows that women form 50.7% of the total population (GSS, 2021a, b). Women dominate in both rural and urban areas as well. With 71.3% of the Ghanaian economy being informal, an estimated 68.3% of women work in this sector. Also, the percentage of women [1] in services and or serving as sales workers is 33% whilst 18.7% are involved in craft and related trade activities (GSS, 2018). In both cases, in the same work field, women outnumber men. The latest Ghana Living Standards Survey (GLSS) report by GSS (2018) shows that the wholesale and retail trade subsector employs about one-fifth (i.e. 21.3%) of the employed individuals in Ghana with 29.4% of the national female population working under this sector as against 12.6% of the national male population. This makes the trade subsector the second largest informal sub-sector in the economy with women dominating in terms of numbers. According to the 2022 report of the MasterCard Index of Women's Entrepreneurship (MIWE), "women's entrepreneurial activities surpass that of men" (p. 43) in Ghana with more than 30% of business owners being female. The MIWE's 2022 report further ranks Ghana third, after Botswana and Uganda due to the outstanding progress made by "women's business ownership" where "nearly three out of every 10 females in Ghana and Uganda are engaged in entrepreneurial activities" (p. 89). This underscores the significant role women play in the trading sector and their contributions to economic growth and gender parity in Ghana. However, women traders face challenges such as poverty, violence, stigma and stereotypes. Aside from these problems, language barrier is also a key factor that can impact the profitability of businesses owned and operated by these local women in Ghana and their overall well-being (Adom and Asare-Yeboa, 2016).

The 17 Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 seek to promote gender equality, empower all women and girls and provide healthy living and inclusive quality education by 2030. The welfare [2] of women engaged in trade is critical to the achievement of these goals. The total earnings of women vary based on geographical locations and economic activities. Previous studies ascribe female earnings to be dependent on factors like physique, education level, cultural, political and social norms (Boahen and Opoku, 2021; Monga *et al.*, 2019). The average hourly income for women in trade increased from GHS (Ghana cedis) 0.70 in 2005 to GHS 1.00 in 2012. The monthly average was GHS 349 in 2017 indicating an improvement. However, women's wages are still relatively low (GSS, 2008; GSS, 2014; GSS, 2018).

Language literacy [3] on the other hand, is essential for women in commerce to overcome these challenges since it has the potential to impact the welfare of trading women and their ability to trade effectively. Migrant students and workers in Ghana find it difficult to communicate and bargain in the local markets, thus, they prefer online trading to engaging local sellers directly (Dzahene-Quarshe and Marjie, 2020). This affects the sales and gains of local traders. Bodomo (1996) highlighted the importance of multilingualism in development

as it improves customer base and people's economic prospects. Ferro and Ribeiro (2016), Fidrmuc and Fidrmuc (2016) and Egger and Lassmann (2012) confirmed these hypotheses.

Women who are literate in a trade language may have better access to market information, negotiate more effectively and have stronger financial literacy. Language literacy influences negotiating power, consumer engagement, advertising and sales (Tuffour *et al.*, 2022; Alshebami and Murad, 2022). Traders may establish a sense of belonging, sustain client connections and build partnerships in purchasing and selling by communicating with consumers in a language they understand. According to GSS (2014), 46.9% of the female population were literate – an increase from 40.3% in 2005. In 2012, 28.2% of women were literate in English only, 22.4% were literate in Ghanaian languages only and 20.7% were literate in both (GSS, 2014). However, in 2017, the literacy rate amongst women aged 15 and older declined to 41%, with 14.1% being literate in English only, 0.2% being literate in French only, 0.1% being literate in both and 1.9% being literate in Ghanaian language(s). Only 0.6% were literate in English, French and Ghanaian language(s). In 2021, the literacy rate amongst women aged 6 and older was 65.6% (GSS, 2021a, b). This improvement could be attributed to the novel-free senior high school (free-SHS) policy.

Whilst the reduction in the illiteracy rate could imply a general improvement in the welfare of women in trade in Ghana, the literacy rate is still low relative to men in the same sector. Recent studies have found a notable increase in female school enrolment in low- and middle-income countries (Evans *et al.*, 2020; Wodon *et al.*, 2020; Psaki *et al.*, 2018; Gakidou *et al.*, 2010) accompanied by a corresponding rise in language literacy amongst women. The rise in language literacy amongst women is encouraging as it can enhance their health, well-being and economic development (World Bank, 2022). Education empowers women, enabling them to utilise language literacy in trade, even if they do not enter the formal sector, thus improving their welfare and promoting economic growth. Addressing welfare issues in the wholesale and retail trade sector, the second largest industry sub-sector, can bridge income and gender inequality gaps and contribute to high decent economic development, as it employs a substantial workforce and is crucial for the achievement of SDGs 5, 8 and 10 (Yegblemenawo *et al.*, 2022).

It is against this background that the current study aims to investigate the heterogeneous impact of language literacy on the welfare of urban and rural women in trade whilst answering the following research questions: (1) What is the effect of language literacy on the welfare of Ghanaian women in trade? (2) How does this effect vary across rural and urban locations? Existing literature (see (Reilly *et al.*, 2023; Amfo and Anderson, 2019; Beyogle, 2015; Guerini, 2007; Boahene-Agbo, 1985) failed to capture any direct effect of English and French literacy on the welfare of Ghanaian women in trade and that serves as the major contribution of this study.

The results show that being literate in both English and French or only English improves the welfare of women in trade, but being only literate in French has an insignificant effect on welfare. Furthermore, this effect is significantly concentrated amongst rural traders but insignificant amongst urban traders. These findings can inform policies and programmes aimed at improving welfare and promoting gender equality, and they contribute to the existing literature on the relationship between language literacy and economic participation.

The paper is structured as follows: Section 1 presents the introduction and background to this study, Section 2 covers the methodology, Section 3 presents and discusses the results and Section 4 concludes, summarises and suggests policy implications based on the findings.

2. Methodology

This study mainly employs quantitative techniques to assess the impact of language literacy on the welfare of women involved in trade in Ghana. In this section, we discuss the data,

sampling design, data source and variables for the study. We also present the empirical framework of the study which includes the identification strategy and the specification of the empirical model.

2.1 Data and variable definitions

The study employs the GLSS7 data organised by Ghana Statistical Service (GSS). This survey covers a range from the individual to the national level, but this study focuses on; and uses individual-level data. According to GSS (2018), the survey "was designed to provide indicators which are nationally and regionally representative." Therefore, a two-stage stratified sampling procedure was adopted. In the first stage, 1,000 enumeration areas were allocated into the 10 administrative regions [4] of the country to form the primary sampling units (PSU). This was done following the 2010 population and housing census and probability proportional size. In the second stage, 15 households per PSU are identified, bringing the total sample size to 15,000 where the rural and urban distribution is 8,430 and 6,570 households, respectively. GSS used questionnaires to collect the needed information, a method recommended by Fraenkel and Wallen (1990) as carefully structured, designed and administered questionnaires enable researchers to obtain adequate data from a large population. In the end, 14,009 out of the 15,000 households were successfully captured which implies a success rate of 93.4%.

The survey covered information on the education and literacy of individuals who are 3 years and older. This is because the educational system of Ghana requires that an individual should begin preschool when they are 4 years old [5]. The survey also gathered data on the main and secondary occupations of individuals, which were then categorised into main industry groups using the International Standard for Industrial Classification (ISIC). Based on these questions, we constructed the welfare variable for each woman in the wholesale and retail trade sector as well as three language literacy independent variables. However, we limited our focus to women who were 18 years or older for two reasons –(1) to ensure that each trader included in the survey qualifies to work according to the labour laws of Ghana and (2) to ensure they have received enough education in English and/or French languages.

First, the dependent variable is constructed from a question where each woman in the wholesale and retail trade sector is asked "How much revenue has been received from the sale of other goods and services by the enterprise during the last week of operation?" The total amount is in a unit of Ghana Cedis, serving as a proxy the welfare of these women as there was no question adequately measuring the net profit of traders in the survey. Using the total revenue stands to be a suitable measure of the welfare of traders, as it reflects that, the higher the total revenue from sales, the more likely the net profit would be substantial, enough to reflect the true welfare level, all other things being equal.

Additionally, three different independent language literacy variables were constructed. The first one pertained to a woman's ability to read or write English and was measured as a dummy variable. It indicates whether the woman could correctly read, speak or write a simple phrase in English on a flashcard with understanding. If the woman could correctly read or write a simple phrase in English we assigned the value 1, otherwise, 0. The second variable concerned a woman's ability to read or write French, also measured as a dummy variable. It indicated whether the woman could correctly read, speak or write a simple phrase in French on a flashcard with understanding. If the woman could correctly read or write a simple phrase in French we assigned the value 1, otherwise, 0. The third variable was assigned the value 1 for women who were able to read or write both English and French with understanding, otherwise, it was assigned 0. Since the data showed that the majority of female traders predominantly spoke Twi/Fante we argue that it has an insignificant differential effect on the outcome variable, hence did not control for it.

After cleaning the data, our final sample consisted of 16,658 women. To address the potential influence of outliers on the findings, particularly since the dependent variable is a continuous one, we log-transformed the variable. The total sales contained a significant number of zero observations, implying that no sales were made by these enterprises in the last week of operation – a very possible phenomenon in Ghana – or no response. To avoid disregarding these observations, these observations which form approximately 15% of the final sample (37.8% and 62.2% in the rural and urban areas, respectively), we followed Frempong *et al.* (2021) by adding 1 to all observations before taking the log.

2.2 Empirical framework

For the quantitative aspect of this study, this subsection presents the empirical model specifications and the identification strategy for analysing the welfare effect of language literacy amongst Ghanaian women in trade.

2.2.1 Empirical model specification. To observe the effect of language literacy on the welfare of Ghanaian women in trade, the following model is specified.

$$lnWelfare_{ijr} = \alpha_0 + \rho_r + \beta_1 LLite_{ijkr} + \beta_2 W_{ijr} + \beta_3 HH_{ijr} + \varepsilon_{ijr} \quad (1)$$

where *Welfare* is the total sales received by woman *i* in enterprise *j* and region *r* during the last week of operation and *ln* is the natural log; *LLite* is a vector of the three different language literacy groups (k = English literacy, French literacy and both English and French literacy); *W* is a vector of individual characteristics serving as controls including age and total hours spent at work in the last one week of operation; *HH* is a vector of household characteristics representing the size of the household each woman belongs to, household head and marital status; ρ_r is the regional fixed effect; and the error term which captures other possible indicators other than the one highlighted in this study is the ε. The constant term is α_0 and the coefficients of interest are $\beta_1, \beta_2, and\ \beta_3$.

It is expected that women who are English and/or French language literate would be able to achieve higher sales – reflecting improvement in welfare, relative to women who are English and/or French language illiterate. Also, language-literate women attract customers who are more educated and prefer to communicate in English and/or French language. Since individuals who language illiterate find it challenging to please these customers, language-literate women tend to hold a marginal advantage over them. Lastly, because bargaining on prices is a common and important skill to develop – especially in a typical Ghanaian market, women who are language literate find it easier to negotiate favourably with customers who can only communicate in English and/or French. This in turn, improves their total sales and consequently, their overall welfare. This hypothesis is supported by the findings of Azam *et al.* (2013), Casale and Posel (2011) and Angrist and Lavy (1997).

Moreover, the number of hours a woman spends in trading is also expected to impact the total sales received, all other things being equal. In other words, on average, women who dedicate more hours to trading goods in the market, are more likely to generate higher revenue compared to those who spend fewer hours. Concerning age, it is argued that younger women possess more energy enabling them to provide trading services for extended periods and cover greater distances in contrast to older women. Thus, older women are more likely to earn less in sales compared to their younger counterparts. This study aligns with both theoretical and empirical findings that suggest experience generally affects wages. However, given the informal nature of the wholesale and retail trade sub-sector in Ghana, individuals enter the market at various stages in life. Thus, directly measuring experience as a distinct variable proved challenging. In this context, we loosely use age as a control for experience as well.

Furthermore, the size of the household to which a woman engaged in trade belongs, her position in the household and marital status are argued to have an impact on the total sales

generated by the end of the day. This is because, traditional and social norms in Ghana expect women to fulfil their household responsibilities diligently. Hence, in a larger households, the woman often dedicate a significant portion of their mornings to attend to the needs of household members and they may have to close earlier in the evening to take care of their families. This situation applies to both married women and women who are heads of their households. Additionally, these women face challenges when it comes to leaving their households unattended in pursuit of better trading opportunities that could potentially lead to higher sales especially in comparison to women from smaller households, those who are not married and those who are not heads of their households. These control variables have been adopted by similar studies including Blunch and Pörtner (2011). Table 1 presents a summary of the variables used, their contextual definitions and measurements.

2.2.2 Identification strategy. It is expected by the identification of the causal effect of language literacy on the welfare of trading women that language literacy should be exogenous. However, we suspect language literacy to be endogenous based on two reasons. First, there is a possibility of self-selection by individuals to either be educated in the speaking and reading of English and or French or not. Consequently, language literacy is more likely to correlate with observed and unobserved individual characteristics which are also correlated with the welfare variable. Second, there is a possibility of reverse causality between language literacy and the welfare variable, that is, whilst language literacy could affect the welfare level from trade, the welfare level from trade could also influence the decision to be language literate.

To deal with the problem of endogeneity, we control for certain observed individual characteristics that are likely to correlate with language literacy. Again, we employ the instrumental variable technique through the two-stage least square (2SLS) estimator framework to fully deal with the issue of endogeneity. Addressing the issue of endogeneity is necessary to ensure that our results are free from any biasness.

As there is a single endogenous variable to deal with (that is, language literacy), at least one instrument is also needed. It is expected that the instrument should be relevant (correlate

Variables	Definitions	Measurement
Welfare	Total revenue from sales in the last week of operation	Continuous; in Ghana Cedis
Language literate	Ability to read and write a simple phrase in both English and French with understanding	Dummy = 1 if the woman is both English and French literate, = 0 if otherwise
English literate	Ability to read and write a simple phrase in English language with understanding	Dummy; = 1 if woman is only English literate, = 0 if otherwise
French literate	Ability to read and write a simple phrase in French language with understanding	Dummy; = 1 if woman is only French literate, = 0 if otherwise
Age	How old the woman is	Continuous; in years
Square of age	Square of the age of the woman	Continuous; in years
Hours worked	Hours worked since the last week	Continuous; in hours
Household size	The total number of people living in the household	Continuous
Household head	Relationship with the head of the household	Dummy; = 1 if woman is head, = 0 if otherwise
Married	Marital status of the woman	Dummy; = 1 if woman is married, = 0 if otherwise
Location	Geographical location	Dummy; = 1 if woman lives in the urban area, = 0 if rural area

Source(s): Authors' construction based on GLSS 7

Table 1.
Variables definitions and measurement

with language literacy) and exogenous (should not correlate directly with the welfare variable, except through language literacy). By following (Winters, 2015; Björklund and Salvanes, 2011; Behrman and Rosenzweig, 2002), the educational level of the mother is identified as the instrument in this case. The educational level of a woman's mother is a relevant instrument in the sense that educated parents are more likely to send their children to school relative to parents (mothers) who are not (highly) educated. In terms of the exogeneity condition, the educational level of a trading woman *per se* does not influence how much the trader would earn from sales.

By the use of the 2SLS instrumental variable estimator, two models are estimated, which are;

$$LLite_{ijk}=\alpha_1+\rho_r+\gamma_1 MEduc_{ij}+\gamma_2 W_{ij}+\gamma_3 HH_{ij}+\mu_{ij} \tag{2}$$

$$lnWelfare_{ij}=\alpha_2+\rho_r+\pi_1\widehat{LLite}_{ijk}+\pi_2 W_{ij}+\pi_3 HH_{ij}+\omega_{ij} \tag{3}$$

where *MEduc* is the educational level of woman i's mother, α_1 *and* α_2 are the constant terms and μ_{ij} and ω_{ij} are the error terms. The coefficients of interest are γ_n *and* π_n $(n=1,2,3)$. In the first stage, we estimate equation (2) with the ordinary least square method and predict $\widehat{LLite}$. In the second stage, we replace *LLite* in equation (1) with its prediction, $\widehat{LLite}$, to get equation (3) for estimation.

3. Results and discussions

3.1 Summary statistics

Table 2 presents the summary statistics of the variables by using the *t*-test to analyse the differences between language-literate and language-illiterate women in trade.

From Table 2 it is observed that out of the 16,658 women in the sample only 0.6% are both English and French literate and 0.1% are French literate; meanwhile, 35.9% are English literate. Also, there is a significant difference between the welfare of women in all three different literacy classes. For instance, on average, women who are English literate have significantly higher welfare relative to their counterparts who are English illiterate whiles women who are French literate have lower welfare relative to their counterparts who are French illiterate. Moreover, the average age of a woman who is literate in both English and French is 30 years, whiles that of a woman who is only English literate is 41 years and that of a woman who is French literate is almost 30 years. Under the full sample, a significant difference is observed in the total weekly hours spent working, marital status, household headship, household size and location. A similar observation is made under the English sample. However, the variables exhibited weak (or no) significant differences under the French sample.

3.2 Estimation results

To observe the association and the impact of language literacy on the welfare of trading women, we estimate the ordinary least squares (OLS) and the 2SLS instrumental variable estimator with the regional dummies. Though the 2SLS instrumental variable results are the main concern of this study, the OLS estimates provide the preliminary results to indicate the direction of biasness and the possible findings if endogeneity is inappropriately dealt with.

3.2.1 OLS results for the effect of language literacy on the welfare of women in trade. The results are shown in Table 3. The results in Column 1 concern the women who are both English and French literate, Column 2 concerns the women who are only English literate and Column 3 concerns women who are only French literate. Based on the data in Columns 1 and

Variable	Full sample			English sample			French sample		
	Language literate ($N = 94$) (0.6%)	Otherwise ($N = 16{,}564$) (99.4%)	Diff	English literate ($N = 5{,}986$) (35.9%)	Otherwise ($N = 10{,}672$) (64.1%)	Diff	French literate ($N = 23$) (0.1%)	Otherwise ($N = 16{,}635$) (99.9%)	Diff
Log(welfare)	3.437	4.107	0.671***	4.232	4.032	−0.200***	2.703	4.105	1.402***
Age	30.074	44.299	1.441***	40.790	46.143	5.353***	29.565	44.239	14.674***
Log(hours worked)	3.909	3.684	−0.225***	3.762	3.643	−0.119***	3.479	3.686	0.207*
Married	0.170	0.526	0.356***	0.528	0.521	−0.007	0.478	0.524	0.046
Household head	0.819	0.637	−0.182***	0.615	0.651	0.035***	0.522	0.638	0.116
Household size	16.351	14.516	−1.835*	16.460	13.442	−3.018***	10.565	14.532	3.967*
Location	0.862	0.681	−0.181***	0.742	0.649	−0.093***	0.682	0.522	0.161*

Note(s): ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$

Source(s): Authors' construction based on GLSS 7

Table 2.
Summary statistics

Variables	(1) Full sample	(2) English sample	(3) French sample
Language literate	0.478*		
	(0.289)		
English literate		0.165***	
		(0.0400)	
French literate			−1.165***
			(0.374)
Age	0.0676***	0.0713***	0.0682***
	(0.00758)	(0.00751)	(0.00752)
Square of age	−0.000709***	−0.000734***	−0.000714***
	(7.49e-05)	(7.42e-05)	(7.44e-05)
log(hours worked)	0.0163	0.00302	0.0132
	(0.0372)	(0.0370)	(0.0370)
Household head	1.386***	1.382***	1.383***
	(0.0560)	(0.0560)	(0.0561)
Household size	0.00529***	0.00488***	0.00522***
	(0.00161)	(0.00161)	(0.00161)
Married	0.367***	0.378***	0.370***
	(0.0462)	(0.0461)	(0.0461)
		(0.0400)	
Regional dummies	Yes	Yes	Yes
Constant	1.207***	1.141***	1.203***
	(0.213)	(0.212)	(0.213)
Observations	15,306	15,306	15,306
R-squared	0.085	0.086	0.085

Note(s): Robust standard errors are in parentheses. ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Authors' construction based on GLSS 7

Table 3.
OLS results for the effect of language literacy on the welfare of women in trade

2, it is evident that language literacy has a notably positive impact on the welfare of women engaged in trade specifically when the woman is either solely English literate or both English and French literate. The findings from Column 3 however indicate that French only literacy has a notably adverse effect on the welfare of women engaged in trade. Given that Ghana is an Anglophone country, a seller who is exclusively literate in French is likely to receive lower revenue compared to her counterparts who can communicate in either both English and French or English only, all other things being equal.

3.2.2 Results from the 2SLS instrumental variable estimator. Due to the issue of endogeneity from the language literacy variables, we proceed with and focus on the 2SLS instrumental variable estimates. The first stage results are presented in Table 4 as the validity and relevance of the instrument are tested.

First, the correlation between the instrument (educational level of the mother) and the endogenous variable (language literacy variable of the trader) is analysed to establish the validity of the instrument. From Table 4, it is observed from Columns 1, 2 and 3 that the more highly educated the mother is the more likely that the woman in question would be language literate. This positive correlation is significant at 1% indicating that the instrument is valid. Moreover, the Cragg-Donald Wald F-statistic and Kleibergen-Paap Wald rk F-statistic both exceed the Stock-Yogo critical values. Additionally, the corresponding probability values of these statistics are less than 1% supporting the notion that the instrument is not weak. Based on this outcome, we proceed to the second stage estimation with the results shown in Table 5.

As previously mentioned, the results in Column 1 pertain to women who are literate in both English and French, in Column 2 we focus on women who are only literate in English

Variables	(1) Full sample	(2) English sample	(3) French sample
Mother's Education	0.003***	0.0716***	0.0003207***
	(0.0006317)	(0.00316)	(0.0000941)
Age	−0.0022***	−0.01187***	−0.000704***
	(0.0004158)	(0.0013954)	(0.0002217)
Square of age	0.0000181***	0.000076***	5.68e-06***
	(3.65e-06)	(0.0000132)	(2.04e-06)
Log(hours worked)	0.00468***	0.07944***	−0.000474***
	(0.000879)	(0.00647)	(0.0001557)
Household head	0.00603***	0.021914*	−0.0019219***
	(0.001675)	(0.011186)	(0.0004294)
Household size	−0.0000716**	0.001816***	−0.0000436***
	(0.0000364)	(0.0003095)	(0.0000114)
Married	−0.006277***	−0.017798*	−0.002268***
	(0.0018059)	(0.0104035)	(0.0007967)
Constant	0.0441092***	0.3224607***	0.0278854***
	(0.0078742)	(0.041198)	(0.0061173)
Regional dummies	Yes	Yes	Yes
Observations	14,468	14,468	14,402
R-squared	0.082	0.056	0.125
Cragg-Donald *F*-value	37.61	591.09	19.93
Kleibergen-Paap *F*-value	22.75	512.55	11.59
Stock-Yogo critical value (10%)	16.38	16.38	16.38

Note(s): Robust standard errors are in parentheses. ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Authors' construction based on GLSS 7

Table 4.
First stage results – effect of language literacy on the welfare of women in trade

and Column 3 deals with women who are solely French literate. From Column 1 in Table 5, it is observed that women engaged in trade who are literate in both English and French tend to experience higher levels of welfare compared to their counterparts who are not literate in both languages. This effect is significant at 5%. In particular, the results show that sellers who are literate in both English and French improve their welfare by 87.5% more than their counterparts who are not literate in both languages, all other things being equal. Moving to Column 2, it is observed that women in trade who are solely English literate tend to have higher levels of welfare compared to their counterparts who are English illiterate and this effect is significant at 5%. In particular, the results suggest that sellers who are English literate improve their welfare by 62.8% more than their counterparts who are English illiterate, all other things being equal. These findings align with the conclusions of Gonzi (2018), Ufier (2015) and Blunch and Pörtner (2011) but in contrast with the argument put forth by Bruthiaux (2002).

From Column 3, it is however observed that women engaged in trade who are solely French literate tend to have lower welfare compared to their counterparts who are French illiterate and this effect is significant at 10%. In particular, the results show that sellers who are French literate improve realise a 774% reduction in welfare relative to their counterparts who are French illiterate, all other things being equal. This finding aligns with the observations made by Angrist and Lavy (1997) on Morocco.

The findings in Table 5 underscore the significance of language literacy in influencing the welfare of women in the wholesale and retail trade sub-sector. The implication is that when traders are literate in both English and French or English only, they are able to effectively engage their customers as there is very little or no language barrier to hinder transactions, given that, Ghana is a typical Anglophone country. However, when the trader is solely French

Variables	(1) Full sample	(2) English sample	(3) French sample
Language literate	0.87487**		
	(0.3863)		
English literate		0.628**	
		(0.244)	
French literate			−7.74*
			(4.62335)
Age	0.0895***	0.0705***	0.0451***
	(0.0153)	(0.00828)	(0.0154)
Square of age	−0.000875***	−0.000709***	−0.000525***
	(0.000130)	(7.73e-05)	(0.000136)
Log(hours worked)	0.00296	0.0183	0.0469
	(0.0408)	(0.0358)	(0.0328)
Household head	1.192***	1.259***	1.221***
	(0.0721)	(0.0593)	(0.0682)
Household size	0.00356**	0.00136	0.00136
	(0.00169)	(0.00176)	(0.00181)
Married	0.347***	0.288***	0.224***
	(0.0632)	(0.0495)	(0.0566)
Regional dummies	Yes	Yes	Yes
Constant	0.856**	1.228***	1.997***
	(0.354)	(0.246)	(0.468)
Observations	14,468	14,468	14,402
R-squared	0.082	0.071	0.125
Cragg-Donald *F*-value	37.61	591.09	26.93
Kleibergen-Paap *F*-value	22.75	512.55	19.59
Stock-Yogo critical value (10%)	16.38	16.38	16.38

Note(s): Robust standard errors are in parentheses. ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Authors' construction based on GLSS 7

Table 5.
Second stage results – effect of language literacy on the welfare of women in trade

literate, she is unable to engage customers since an insignificant number of customers in Ghana are solely French literate. This leads to the loss of potential customers to other traders who are English literate. Finally, the findings highlight that traders who are literate in both English and French outperform traders who are solely English literate. This holds true because, when customers who are more fluent in French than English approach the English literate traders, language barriers make these customers to seek assistance from traders who are literate in both English and French as this is the more obvious choice.

Table 5 also shows that as a trader grows in age, her welfare initially increases but beyond a certain age, her welfare begins to decline. This concave relationship is significant under Columns 1, 2 and 3 and it aligns with the expected theoretical and empirical sign in most wage models, which posits that, wages decrease beyond a certain level of experience. The turning points observed under Columns 1, 2 and 3 are approximately 51, 50 and 44 years, respectively. Additionally, traders who are married or household heads have higher welfare compared to traders who are not married or are not household heads. For instance, from Column 1, the welfare level of traders who are heads of households is 119.2% higher than that of those who are not household heads, whilst that of those who are married is 34.7% higher than those who are not married. This positive relationship exists because such traders often engage their children and other household members in their enterprises as contributing family workers [6]. In Ghana, married women tend to receive some financial support from their husbands to boost their business capital and some children and husbands assist in the delivery of goods. They

also contribute to household chores which allows the women to work more in the market, resulting in higher sales.

3.3 Heterogeneous effects of language literacy on the welfare of women in trade

To understand the heterogeneous effect of language literacy for policy-specific reasons, we disaggregate the data into rural and urban contexts. Given that the volume of trade and the number of traders vary across the country spanning from rural to urban areas – it is imperative to analyse the impact of these factors in each class. The first and second-stage results are displayed in Table 6.

From Table 6, Columns 1 and 2 offer insights into women who are literate in both English and French. Column 1 presents the results for the urban traders and Column 2 presents the results for the rural traders. The results in Columns 3 and 4 concern the urban and rural women who are solely English literate, respectively. The results in Columns 5 and 6 address the urban and rural women who are solely French literate, respectively.

The findings in Columns 1, 3 and 5 show that language literacy has no significant effect on the welfare of traders in urban areas. Columns 5 and 6 similarly demonstrate that French literacy has no significant impact on the welfare of women in urban or rural areas. However, in the rural areas, Columns 2 and 4 reveal that language literacy positively influences the welfare of traders. Specifically, from Column 2, rural traders who are literate in both English and French tend to experience a 53% increase in their welfare compared to their counterparts who are language illiterate. Also, from Column 4, rural traders who are English literate witness a 34.5% improvement in their welfare relative to their counterparts who are English illiterate, all other things being equal. These findings align with similar arguments put forth by Gonzi (2018) and Blunch and Pörtner (2011).

The findings indicate that language literacy favours traders in rural areas but not urban areas. The disparity arises from the high level of competition amongst the numerous trading enterprises in the urban areas as opposed to the less competitive rural settings. Thus, literate in both English and French as a trader provides a significant advantage over competitors. However, in rural areas where the number of trading enterprises is limited and only a few traders are language literate, there is a higher likelihood of attracting more customers with less competition. This, in turn, improves sales and consequently enhances the welfare of the trader over time. Therefore, these findings provide evidence of the role of language literacy in improving the welfare of traders in rural areas of Ghana (see Gonzi, 2018; Blunch and Pörtner, 2011).

4. Conclusions and policy implications

In this study, we analysed the effect of language literacy on the welfare of women engaged in trade activities in Ghana. We used the seventh wave of the GLSS data from the Ghana Statistical Service (GSS, 2018) and employed a two-stage instrumental variable approach to analyse this effect. The results indicate that traders who are literate in both English and French experience a significant increase in their welfare, approximately 87.5% higher than their counterparts who are language illiterates. Similarly, traders who are English literate experience an enhancement in their welfare, approximately 62.8% higher than their counterparts who are English language illiterate. On the other hand, traders who are solely French literate tend to experience a significant decline in their welfare, approximately 774% lower than their trading counterparts who are not literate solely in French language. Overall, we found that English and French language literacy contributes to improved welfare for women in trade, regardless of whether they are literate in both languages or in English language only.

Table 6.
Heterogeneous effects of language literacy on the welfare of women in trade

	Full sample		English sample		French sample	
	Urban (1)	Rural (2)	Urban (3)	Rural (4)	Urban (5)	Rural (6)
First stage						
Mother's education	0.00381***	0.00155***	0.0647***	0.07552***	0.000125***	0.000524**
	(0.0007626)	(0.000450)	(0.00365)	(0.00668)	(0.0000401)	(0.000215)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
Second stage						
Language literate	2.168	0.53**				
	(4.081)	(0.2288)				
English literate			0.128	0.345***		
			(0.240)	(0.11645)		
French literate					94.22	−2.012
					(96.72)	(5.095)
Age	0.0492***	−0.0240	0.0532***	0.146***	0.150	0.110***
	(0.0132)	(0.0487)	(0.00912)	(0.0192)	(0.0936)	(0.0146)
Square of age	−0.000527***	1.19e-05	−0.000561***	−0.00148***	−0.00142*	−0.00119***
	(0.000113)	(0.000438)	(8.73e-05)	(0.000177)	(0.000841)	(0.000143)
Log(hours worked)	−0.0297	0.288***	−0.0301	0.0493	−0.0381	0.0891*
	(0.0484)	(0.0836)	(0.0477)	(0.0502)	(0.0451)	(0.0466)
Household head	1.119***	2.396***	1.108***	1.481***	1.268***	1.478***
	(0.0671)	(0.344)	(0.0650)	(0.0947)	(0.163)	(0.0951)
Household size	0.0107***	−0.00121	0.0112***	−0.000728	0.0132***	0.00456
	(0.00217)	(0.00424)	(0.00251)	(0.00355)	(0.00366)	(0.00292)
Married	0.252***	1.075***	0.278***	0.280***	0.253***	0.288***
	(0.0847)	(0.301)	(0.0593)	(0.0869)	(0.0755)	(0.0971)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.357***	1.752**	2.271***	−1.214**	−0.427	−0.132
	(0.350)	(0.759)	(0.261)	(0.525)	(2.584)	(0.372)
Observations	9,943	4,525	9,943	4,525	9,915	4,487
R-squared	0.044	−2.019	0.043	0.042	−1.870	0.089
Cragg-Donald *F*-value	40.023	27.63	360.92	151.080	26.72	37.092
Kleibergen-Paap *F*-value	24.911	20.221	314.52	127.813	19.81	25.668
Stock-Yogo critical value (10%)	16.38	16.38	16.38	16.38	16.38	16.38

Note(s): Robust standard errors in parentheses. ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Authors' construction based on GLSS 7

Furthermore, the findings suggest that language literacy is effective in enhancing the welfare of rural traders. Specifically, literacy in both English and French or English alone favours higher welfare of rural women in trade. The effect, however, is insignificant in the urban areas as well as for those who are solely French language literate in Ghana.

From a policy perspective, our findings support the idea that language literacy enhances the welfare of traders in Ghana. Therefore, the government's free education policy should continue and be expanded to ensure that more women receive education, especially in English and French languages. This would enable them to achieve higher welfare levels if employed in the wholesale and retail trade industry sub-sector. Additionally, the government and relevant educational institutions including universities, could promote adult education in English and French languages with a particular focus on rural women engaged in trade. This would contribute to the improvement of welfare for rural women involved in trade.

It is worth noting that Ghanaian economy has undergone significant changes since 2017 when the latest GLSS was conducted. These changes include a financial sector clean-up and the impact of the latest COVID-19 pandemic. These factors could have influenced the language literacy of women in trade and their welfare. However, due to data limitations, this study does not account for such structural dynamics. It is recommended for future studies to employ a primary data which would help capture these dynamics to ascertain how the results differ from the current findings.

Notes

1. This refers to women who are 15 years and older during the survey period by GSS.
2. This refers to the total monetary earnings that women earn from direct trade activities.
3. Literacy as defined by GSS (2018) is the ability to read and write a simple sentence in English, Ghanaian language(s) or French with understanding. However, GSS surveys before 2017 did not cover the French language.
4. The number of administrative regions in Ghana was 10 at that time. Now it has been increased to 16.
5. GSS (2018) indicates that some children start nursery at the age of 3.
6. According to GSS (2018), Contributing family workers are the members of a household of an enterprise owner. Though they are non-partners of the enterprise, they work in the enterprise without a regular pay for at least one-third of the normal working period.

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