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DRIVERS OF FOOD-AWAY-FROM-HOME CONSUMPTION PROPENSITY AND EXPENDITURES IN ETHIOPIA: A DOUBLE- HURDLE APPROACH

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Abstract

Food-away-from-home consumption is fast becoming a trend in developing economies and thus has implications for the agricultural sector and agribusiness. This study uses a double-hurdle model using data from the 'Ethiopia Socioeconomic Survey (ESS)' database for 6770 households to determine the socio-economic factors that influence participation and expenditure on FAFH consumption. The results show that participation in FAFH consumption increases with being a male-headed household, labour market participation as measured by hours of work, and rural location. Participation in FAFH consumption, however, decreases with household size and being married. On the level of expenditure on FAFH consumption, age of household head, household size, and household income per adult equivalent play a significant positive role. On the contrary, being married and having a rural location significantly lowers expenditure on FAFH. We propose that suppliers of FAFH should be guided by the findings of the study in their marketing strategies, especially market segmentation strategies. The increasing consumption of FAFH has implications for the agricultural sector and agribusiness. As FAFH consumption continues to rise, there is a need to refocus agricultural and agribusiness policies to meet the demand for food in these establishments. This shift in consumption patterns may require

changes in production practices, supply chains, and market strategies to ensure the availability of ingredients and products for FAFH.

Keywords: Food-away-from-home, Consumption, Expenditure, Double-Hurdle, Ethiopia.

INTRODUCTION

The consumption of food-away-from-home (FAFH) has long been an established phenomenon in developed countries. It is a rapidly increasing trend in developing countries as countries transition from low-income to middle-income class (Mottaleb & Mishra, 2017). The supply of FAFH is increasing as well (Saksena *et al.*, 2018). Fast-food firms such as McDonald's, Burger King, KFC, and Peterpan are rapidly opening outlets across the developing world. FAFH are prepared and ready-to-eat foods from restaurants, fast-food joints, hotels, and other types of facilities that are eaten on the premises or carried out and eaten outside (Stewart, 2011). Ethiopia's swift urbanization and demographic shifts have resulted in significant changes in dietary patterns, particularly concerning the consumption of FAFH. The establishment of diversified eating-out options, ranging from traditional eateries to international fast-food chains, has witnessed a surge in urban centers. The influx of multinational fast-food giants underscores the globalization of culinary culture, impacting the FAFH landscape (Mottaleb & Mishra, 2017).

Several socio-economic factors contribute to the growing FAFH consumption. The rise of dual-income households and increasing urbanization have altered traditional eating patterns, making FAFH an attractive and time-saving option for busy families. Moreover, the aspirational nature associated with Western-style dining experiences, as portrayed by international fast-food chains, has led to a perceived status associated with FAFH consumption. This, in turn, influences consumer behavior and shapes dietary choices (Mottaleb & Mishra, 2017). However, the readily available nature of FAFH offerings often leads to increased consumption of energy-dense, nutrient-poor foods, thereby raising concerns about public health and nutritional outcomes. FAFH is often associated with high levels of salt, unhealthy fats, and added sugars which is contributing to an increase in non-communicable diseases, including obesity, diabetes, and cardiovascular diseases (Ng *et al.*, 2014). The lack of nutritional information and transparent labeling in many FAFH establishments limits consumers' ability to make informed food choices, exacerbating the health risks associated with FAFH consumption. While international fast-food chains have made significant inroads in Ethiopia's urban centers, traditional Ethiopian cuisine still holds sway. Restaurants and eateries offer local dishes catering to a diverse palate, underscoring the coexistence of different food cultures and the adaptability of consumers to new culinary experiences (Mwobobia, 2022). The rapid growth of FAFH consumption in Ethiopia presents both challenges and opportunities. While the proliferation of FAFH outlets contributes to economic growth, job creation, and urban development, it also raises concerns about its environmental footprint, given the potential increase in packaging waste and resource consumption. Moreover, the need for effective regulation and monitoring of FAFH establishments becomes essential to ensure food safety, hygiene standards, and accurate nutritional information (Godbharle, Jeyakumar & Kesa, 2022).

As the consumption of FAFH continues to expand in developing countries, particularly in Ethiopia, it is imperative to gain a comprehensive understanding of the factors underlying it, the proportion of income allocated to it, and the determinants of such spending. This knowledge is crucial for formulating sustainable approaches that effectively capitalize on its economic advantages, while offsetting its detrimental effects on human health and the environment. While empirical literature on FAFH consumption is well established in the developed countries (e.g., Godbharle, Jeyakumar & Kesa, 2022; Janssen *et al.*, 2017; Mottaleb & Mishra, 2017), in developing countries, a limited number of studies exist (e.g., Bamiro, 2012; Blick, Abidoye & Kirsten, 2018; Sauer *et al.*, 2021; Ogundari, Aladejimokun & Arifalo, 2015; Agbai *et al.*, 2014) on the dynamics of FAFH consumption due to the lack of adequate data and limited interest in the FAFH service industry in the past. Very little is known about the patterns of FAFH consumption in Africa and what determines both patronage and FAFH expenditure. Studies linking household characteristics to FAFH are rare in Eastern Africa and more so in Ethiopia where the FAFH phenomenon is gaining prominence. This study contributes to filling the knowledge gap by examining the drivers of FAFH consumption decisions and expenditures in Ethiopia using the Ethiopia Socioeconomic Survey (ESS) dataset. To capture both the

participation and expenditure on FAFH, a Double-Hurdle Model is employed to account for the two-stage nature of FAFH consumption and the inclusion of zero-type consumers who do not participate in FAFH consumption (García, 2013).

The remainder of the study is structured as follows: there is a review of the empirical literature on FAFH in Section 2 while the theoretical framework is presented in Section 3; the methodology and data sources are covered in Section 4 while the results and discussion are contained in Section 5; and Section 6 is the conclusion and policy implications of the findings.

LITERATURE REVIEW

Amid rapid structural transformations, economic growth, and emerging urbanisations, African food systems are changing rapidly (Worku *et al.*, 2017). The rate of FAFH in developing countries is experiencing an upward trend as reported by Blick, Abidoye, and Kirsten (2018) who indicate that developing countries such as India, South Africa, and Tanzania have experienced close to a 50 percent upsurge in FAFH. Ethiopia, akin to other low-income nations, has transformed its food value chains and retail sector. Notably, the conventional food basket has experienced a steady evolution with a growing inclination towards high-value foods, including processed and animal products, as well as a rising proclivity towards convenience foods, as evidenced by an increased willingness to pay (Worku *et al.*, 2017).

Various studies have contributed to the FAFH literature in Africa (e.g., Blick, Abidoye & Kirsten, 2018; Sauer *et al.*, 2021; Ogundari, Aladejimokun & Arifalo, 2015; Agbai *et al.*, 2014; Fabiosa, 2008; Bamiro, 2012; Mensah, Aido & Yeye., 2013; Adam, Hiamey & Afenyo, 2014; Ayo, Bonabana-Wabbi a& Sserunkuuma, 2012). Mensah, Aido, and Yeye (2013) in their study on FAFH in Ghana found that the consumption of street food is significantly affected by the gender of the respondent, the household size, and the educational level of the respondent. Adam, Hiamey and Afenyo (2014) argue that in Ghana, concerns about food safety led to an increase in restaurant dining and a decline in disorganised food facilities. According to Ayo, Bonabana-Wabbi and Sserunkuuma (2012), 90% of the people surveyed eat fast food in Uganda. Tasty and convenient cuisine was the driving force behind fast food consumption. Factors such as household size, education level, distance, and monthly discretionary income account for the likelihood of consumption and cost of FAFH. In Nigeria, Agbai *et al.* (2014) indicate that the average amount spent on FAFH was N1130. Male gender, level of education, monthly income, single status, and having breakfast before leaving the house were the main factors influencing the consumption of FAFH. Ogundari, Aladejimokun and Arifalo (2015) found household income and households with younger age cohorts to enhance the decision and likelihood of consuming FAFH, while the education of the household head has a negative impact on both the demand for FAFH and the probability of consuming FAFH. In a study in Lagos Metropolis, Bamiro (2012) revealed that households and individual characteristics, including the sex of the respondent, household size, the number of adults in households, and gender composition, influenced the expenditure on FAFH.

Fabiosa (2008) states that only about 36% to 38% of Egyptian households have positive FAFH expenditures. The study revealed that FAFH expenditures are significantly and favourably impacted by households that are urban in location, have a larger family size, and have a young, male head of household. In a study of factors influencing demand for FAFH in South Africa, Blick, Abidoye and Kirsten (2018) found that small households headed by younger white female or male household heads were more likely to purchase FAFH. This result is true for those who live in urban settlements. They find, however, that households headed by males spent more on FAFH than female-headed households. They also found income to be an important determinant of FAFH and thus concluded that the income elasticity for FAFH demand was inelastic and a normal good, and therefore expenditure on FAFH will increase with income.

Away from Africa, there is a plethora of literature examining the phenomenon of FAFH. These studies include evidence from developed and developing economies (e.g., Aguilar-Lopez & Kuhar, 2022; Cupak Pokrivcak & Rizov, 2016; Godbharle, Jeyakumar & Kesa, 2022; Queiroz & Coelho 2018; Seidu, 2019; Liu, Kasteridis & Yen, 2013; Pandey *et al.*, 2020; Gäl *et al.*, 2014; Terin, 2019; Mottaleb & Mishra, 2017; Tan, 2010; Codjia & Saghaian, 2022; Mutlu & Gracia, 2004; Mutlu & Gracia, 2006). In Turkey, Gäl *et al.* (2014) find that the availability of restaurants, the wife's job and education, the makeup of the household, and income all play a major role in explaining FAFH consumption. Terin (2019) also confirms these results indicating that FAFH is largely explained by income, male household heads, married heads of households,

and homes with cash assistance payments. Mottaleb and Mishra (2017) in Bangladesh find that the decision and cost of FAFH are influenced by urban residence, affluent homes as well as the level of education of the household heads. Similarly, Tan (2010) in Malaysia indicates that the likelihood and amount of FAFH expenditures are significantly explained by urban residence, income, younger households, and Chinese households. Aguilar-Lopez and Kuhar (2022) studied the disruptive effect of COVID-19 on FAFH expenditure in Mexico and found that FAFH participation declined in all income distributions and regions during the pandemic. They found that income was a statistically significant determinant of FAFH expenditure. They also found that exposure to food shortages during the pandemic and the number of older households were negatively related to FAFH participation and reduced the ratio of expenditure on FAFH to the income of households. Remittances were found to negatively influence FAFH participation and increase the ratio of expenditure on FAFH to the income of households.

Cupak, Pokrivcak and Rizov (2016) studied the demand for FAFH in Slovakia and revealed that Slovaks perceive FAFH as a luxury product. The opportunity cost of time for the wife was found to be a key determinant of the demand for FAFH, with households with employed wives spending more on FAFH. Similarly, in Spain, Mutlu and Gracia (2004) show that FAFH consumption is a luxury, and it is positively and significantly impacted by income and the value of homemaker time. Similarly, Mutlu and Gracia (2006) indicate that the FAFH spending patterns of Spanish households vary depending on the kind of meal, and variables that affect FAFH expenses are income, the makeup of the household, and the opportunity cost of time for women. Godbharle, Jeyakumar and Kesa's (2022) study in India revealed that the reserved caste categories, household heads with higher education up to secondary education, urban residence, the organised sector as an income source, higher annual incomes, and higher annual consumption expenditures were positively related to expenditure on eating out. In a study of urbanisation and food consumption in India, Pandey *et al.* (2020) concluded that income was the reason for the variation in food expenditure instead of urbanization. The difference in mean consumption between residents of rural and urban areas was virtually negligible.

Queiroz and Coelho's (2018) study in Brazil revealed a favourable correlation between the opportunity cost of time for females and the expenditure on FAFH. The employment of domestic assistants and having children has the effect of curtailing FAFH expenditure. In China, Liu, Kasteridis and Yen's (2013) study demonstrates that household composition and income significantly influence the participation and expenses associated with FAFH. In another study, Ma *et al.* (2006) show that China's post-reform urban economy is witnessing a shift in spending patterns due to the swift rise in FAFH consumption. Age, sex, the head of the home, and monthly income all have significant effects on FAFH costs. In Albania, Seidu (2019) indicated that the expansion of the food service sector in the future will be propelled by augmented expenditure at full-service dining establishments, owing to the mounting opportunity cost of the food manager's time at home as well as the household income and formal education level of Albanians. In the USA, Codjia and Saghalian (2022) show that, within the context of COVID-19, both food and FAFH exhibited considerable price elasticity during the pandemic. Ham *et al.* (2004) showed that both in the US and Korea, the presence of newborns in a household and income had an impact on FAFH expenses. The number of children in a home and marital status have a major impact on FAFH expenditures in Korea, but not in the US. In an earlier study, Nyaga Jr and Capps Jr (1994) indicated that household size, income, age, ethnicity, race, and geography, strongly impact how many meals are bought. Compared to jobless people, employed people eat more FAFH.

From the literature reviewed, it is revealed that various socio-economic and location factors play a role in FAFH consumption decisions and expenditures. However, the significance and direction of impact of these factors vary across countries. In the case of Ethiopia, little is known about FAFH consumption and expenditures, particularly the driving factors, hence this study.

THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

The theoretical framework proposed for the study is the household production theory (Becker, 1965). Often referred to as Becker's model, the household production theory is an offset of the traditional demand model to account for non-working time. The household production theory has been employed in several studies examining FAFH (e.g., Byrne, Capps Jr & Saha, 1996; Stewart, 2011; Mutlu & Gracia, 2004;

Yen, 1993). In the model, households are considered to be both producers and consumers. A household's utility is a function of commodities, Z_i , which are produced using the input of market products and time. The quantities of commodities produced are estimated by maximizing the household's utility function subject to prices and resource constraints including time. From the household utility function and constraints, an expenditure function for FAFH is stated as:

$$E_i = f(T_i, M_i, D_i) \quad (1)$$

where E_i is expenditure on FAFH for the i th household, T_i is the level of labor force participation (hours of work) of the i th household head, M_i is the total income (wage and non-wage income) of the i th household, and D_i represents a vector of socio-demographic characteristics of the i th household such as the age of household head, sex of household head, education of household head, household size and composition, marital status of household head and location of household (urban versus rural). These differences in the socio-demographic variables among the households reflect preferences (Byrne, Capps Jr & Saha, 1996; Stewart, 2011). The hours of work are used instead of the wage rate of the household head (the price of labour) to account for the opportunity cost of time (Byrne, Capps Jr & Saha, 1996; Mutlu & Gracia, 2004).

Regarding T_i , if a household head works more hours, it will reduce the time available for the household production function and will thus increase consumption expenditure on FAFH (Byrne, Capps Jr., & Saha, 1996). Food-at-home (FAH) requires a lot of time input for production and consumption relative to FAFH (Stewart, 2011).

H1: *FAFH consumption expenditure will increase with the working hours of the household head.*

Regarding M_i , it is expected that households with higher income, both earned and unearned income, will tend to consume more FAFH. Aside from high income increasing with the resource portfolio of households, it also comes with an increased value of time and hence a higher opportunity cost of producing and eating FAH. That is, high-income households may substitute more working hours and/or leisure for the time spent in producing FAH (Stewart, 2011).

H2: *Expenditure on FAFH will increase with household income.*

METHODOLOGY

Data and Variables

The study employs panel data from the Living Standards Measurement Study—Integrated Surveys on Agriculture (LSMS-ISA) for Ethiopia, specifically designated as the Ethiopia Socioeconomic Survey (ESS). The ESS is a nationally representative panel survey of households with a special emphasis on agriculture. The ESS project is designed by the LSMS of the World Bank and administered by the Central Statistical Agency of Ethiopia (SSA). This study uses data from the 4th wave of the ESS (2018-2018). For this study, only data collected using the household questionnaire was used. The household questionnaire covers several socio-economic issues, including household characteristics such as household membership, composition and educational attainment, health status, consumption expenditure for food and beverages both at home and away from home, expenditure on non-food items, labour force participation and employment in the farm and non-farm sectors, use of amenities, finance and access to credit, and asset portfolio. The data comes in multiple files. The data is matched merged using appropriate STATA commands. After the match merging, there are 6,770 observations (households) which are used for the analysis. The dependent and independent variables for this study are extracted and constructed from the household dataset for the various years (see Table 1). The variables and definitions are driven by literature (see, e.g., Yen, 1993; Byrne, Capps Jr., & Saha, 1996; Mutlu & Gracia, 2004; Ayo, Bonabana-Wabbi & Sserunkuuma, 2012; Mottaleb & Mishra, 2017; Blick, Abidoeye & Kirsten, 2018).

Table 1
Description of Variables

Variables	Definition
Dependent Variables	
FAFH Decision (d_i)	1 if household have ever purchased FAFH, 0 otherwise
FAFH Expenditure (y_{it})	Yearly per capital expenditure on FAFH
Household health status	Proxied by the average Body Mass Index (BMI) of a household. 1= Underweight (below 18.5), 2=Normal Weight (18.5-24.9), 3=Overweight (25-29.9), 4=Obese (30 and greater)
Explanatory Variables	
Age of household head	In years
Education of household head	Years of schooling
Household headship	1 if male-headed household, 0 otherwise
Marital Status of household head	1=married, 2=single, 3=divorced/separated, 4=cohabitation, 4=widowed
Market labour participation	Number of hours of work of household head
Household size	Number of people in a household
Dependency ratio	The ratio of household members who are 0-14 years and 65 years + household members who are from 15-64 years old
Household income	Natural Logarithm of yearly per capita income
Occupation of household head	1=wage employment, 2=self-employment (non-farm), 3=self-employment (agriculture), 4=unemployed
Occupation of spouse	1=wage employment, 2=self-employment (non-farm), 3=self-employment (agriculture), 4=unemployed
Location	1if urban location, 0 otherwise
Survey year	Dummies for 2011-2012, 2013-2014 and 2015-2016

Source: Authors' construct

Empirical Model

The Double-Hurdle model, first proposed by Cragg (1971) is employed in the analysis of FAFH consumption decisions and expenditure. In the model, there are two hurdles that households must overcome before a positive expenditure on FAFH can be realized. The first hurdle is that households must decide to consume FAFH. The second hurdle is that households must make a positive expenditure on FAFH. The Double-Hurdle model is of the form:

$$\text{First hurdle: } y_{i1}^* = z_i' \alpha + v_i \quad (2)$$

$$\text{Second hurdle: } y_{i2}^* = x_i' \beta + v_i \quad (3)$$

$$y_i = x_i' \beta + v_i \quad y_i = y_{i1}^* \text{ if } y_{i1}^* > 0 \text{ and } y_i = y_{i2}^* \text{ if } y_{i2}^* > 0$$

$$\begin{pmatrix} v_i \\ v_i \end{pmatrix} \sim N \left[\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & 0 \\ 0 & \sigma^2 \end{pmatrix} \right]$$

where y_{i1}^* is a latent variable describing the household's decision to consume FAFH, y_{i2}^* is a latent variable describing household expenditure on FAFH, y_i is the observed dependent variable (household expenditure on FAFH), z_i is a vector of variables explaining the decision to consume FAFH, x_i is a vector of variables explaining the expenditure on FAFH, α and β are vectors of parameters to be estimated, and v_i and v_i are the error terms assumed to be independent and identically distributed (iid). The log-likelihood function for the double-hurdle model is given by:

$$\text{Log} L = \sum_0 \ln \left[1 - \Phi(z_i' \alpha) \Phi \left(\frac{x_i' \beta}{\sigma} \right) \right] + \sum_+ \ln \left[\Phi(z_i' \alpha) \frac{1}{\sigma} \Phi \left(\frac{y_i - x_i' \beta}{\sigma} \right) \right] \quad (4)$$

The model is estimated using maximum likelihood estimation procedures by maximizing LogL with respect to the parameters contained in the vector β and z and the standard deviation σ parameter. Equation 2 is modelled as Probit and equation 3 is modelled as left-censored Tobit (Blundell & Meghir, 1987). Among the explanatory variables listed in Table 1, it is assumed that non-economic factors explain the decision to consume FAFH, and hence household income will be excluded in the participation equation (equation 2) but included in the expenditure equation (equation 3) for identification (see e.g., Keelan, Henchion & Newman, 2009; Dong, Chung & Kaiser, 2004). If the same set of explanatory variables is in both equations, the models will not be identified. The dependent variable, FAFH expenditure, is right skewed and require transformation.

The natural logarithmic transformation cannot be applied because FAFH expenditure has many zeros (0s), and $\log(y)$ is undefined when $y \leq 0$. Under such circumstances, the inverse hyperbolic sine (IHS) transformation is recommended (Burbidge, Magee & Robb, 1988; Norton, 2022) as many researchers have raised serious concerns with using $\log(y+c)$ transformation when the dependent variables have zeros. However, the shortcoming of the IHS transformation is that, for an IHS-transformed dependent variable, the coefficient has no interpretative meaning (cannot be interrupted as in logarithmically transformed variable) and hence the calculated marginal effects will be misleading (Norton, 2022). Also, the HIS not invariant to scaling (Aihounton & Henningsen, 2021; Chen & Roth, 2023). A solution to the first challenge is to retransform the predicted values back to the original scale to calculate the marginal effects (Norton, 2022) but the scaling challenge may still exist. Because of these challenges and as recommended by some researchers (e.g., McKenzie, 2023), the results are interpreted without reference to the magnitude of the coefficients.

FINDINGS AND DISCUSSION

Descriptive Analysis

Table 2 provides the summary statistics of the variables used in the study. The results revealed that 43.6% of the households in Ethiopia participate in FAFH consumption, and FAFH expenditure for a household averaged about 4339.127 Ethiopian birr, with a maximum expenditure of about 410,800 Ethiopian birr. Household heads who are males constitute about 68.3% of the sample, suggesting that most households in Ethiopia are headed by males. About 69.4% of the household heads are married, with the average household head being approximately 42 years old. The average household size is about 4 people. While some households have a minimum of 1 person per household, others have a maximum of 19 persons per household. The literacy rate is about 56%, which is relatively low. The mean number of hours of work per household head is 22.85 hours per week with a maximum of 140 hours per week for some household heads. The average household income recorded in the sample is about 21,880.51 Ethiopian birr with a minimum of 265.93 and a maximum of 459,357.6 Ethiopian birr. About 36.6% of the household heads are engaged in wage employment outside agriculture. Finally, 46% of the sample lives in urban areas in Ethiopia.

Table 2
Descriptive Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
FAFH expenditur	6,770	4339.127	14446.69	0	410800
Sex	6,770	.6834564	.465162	0	1
Age	6,770	42.18922	15.11839	13	99
Single	6,770	.0917282	.2886632	0	1
Married	6,768	.6944444	.4606764	0	1
Divorced	6,768	.0678191	.2514539	0	1

Seperated	6,768	.0265957	.1609106	0	1
Widowed	6,768	.1180556	.3226977	0	1
Cohabitation	6,768	.0013298	.0364447	0	1
Household size	6,770	4.242097	2.286478	1	19
Literacy	6,767	.5585932	.4965917	0	1
Hours of work	6,770	22.85121	25.23101	0	140
Income	6,770	21880.51	21337.78	265.9306	459357.6
WageNFE	6,765	.3664449	.4818686	0	1
Location (rural urban)	6,770	.4601182	.4984437	0	1

Determinants of FAFH Participation Decision and FAFH Consumption Expenditure

The results of the double hurdle model of FAFH participation and expenditure in Ethiopia are presented in Table 3. The first hurdle indicates the FAFH participation equation, while the second hurdle indicates the intensity of FAFH expenditure among households. The likelihood ratio (LR) statistic, a measure of model fitness, is significant at the 1% level indicating that the model is fitted well. First the results of the first hurdle, which are factors that influence household decision to consume FAFH are discussed. From the results, sex of household head, marital status, household size, literacy status, working hours, and location are associated with the decision to consume FAFH in Ethiopia. Age and engagement in wage non-farm employment unimportant in FAFH consumption decision. The results show that male-headed household are more likely to consume FAFH relative to female headed households, consistent with findings of Blick, Abidoye and Kirsten (2018) and Terin (2019) among others. Women, in general, are more inclined to cook meals than men due to societal norms and time constraints; women are also more concerned about food hygiene, food safety and nutrition, and favor more home prepared meals. Also, the dynamics of time allocation in homes may possibly be responsible for the pattern that has been noticed.

Being married reduces the probability of participating in the consumption of FAFH. Being married increases the probability of preparing meals at home and reduces the likelihood of eating FAFH, consistent with findings in previous studies (e.g., Terin, 2019; Fabiosa, 2008). For married people, it is possible to arrange work schedules such that at least one of the partners is available at home to participate in food preparations, leading to more consumption of home-cooked meals and reducing the need for FAFH. Also, larger households have a reduced probability of consuming FAFH relative to smaller households. This is expected as it is more expensive to eat FAFH and hence a larger household size will require a larger budget for FAFH. Most large household will therefore choose to prepare and share meals at home as opposed to eating out. The results corroborate the findings of Blick, Abidoye and Kirsten (2018); Mensah, Aido and Yeye (2013); Bamiro (2012), who also indicate that household size reduced participation in FAFH.

Table 3
Double-Hurdle Results of Determinants of FAFH

Variables	Participation decision (1 st Hurdle)		Expenditure decision (2 nd Hurdle)	
	Coef.	Std. Err	Coef.	Std. Err
SexHHH	.2456***	.0429	.4198***	.0544
logAge	-.0729	.0504	-.0425	.0658
Married	-.1485***	.0464	-.3495**	.0590
ihsHHsize	-.1819***	.0334	.3500***	.0490

Literacy	.1166***	.0392	-.0148	.0525
hrsHours	.0487***	.0104	-.0092	.0138
logIncome			.8115***	.0357
WageNFE	.0155	.0452	.0380	.0589
Location	.0711*	.0394	-.3191***	.0546
Constant	.1824	.2017	.7227	.4668
Regions?	Yes	Yes	Yes	Yes
_cons	.0130***			
/sigma	.0142			
LR Chi2	1355.81***			
Pseudo R2	0.0704			
Log likelihood	-8947.3736			
N	6,765			

*** p<0.01, ** p<0.05, * p<0.1

Furthermore, being literate and working long hours increases the likelihood of participation in FAFH consumption. Working long hours reduces the time available to engage in meal preparation at home and increases the likelihood of FAFH. Also, working long hours suggests that the persons will spend most of their time away from home, thus increasing their chances of consuming FAFH. Those who are literate are the ones more likely to engage in formal jobs that keep them away from home for long and hence may more likely consume FAFH while at work; aside from that such individuals may have a higher opportunity cost of time to engage in meal preparation at home. The results are consistent with the findings of Cupak, Pokrivcak and Rizov (2016) and Agbai *et al.* (2014). Location is a significant determinant of FAFH consumption at the 10% significance level. The results suggest that those located in urban areas in Ethiopia are more inclined to consume FAFH relative to those located in rural areas. This result is consistent with Blick, Abidoye and Kirsten (2018), who also find a similar relationship in South Africa. Urban areas typically have a higher concentration of restaurants, cafes, and other food establishments. The greater availability and variety of food options in urban settings may contribute to an increased likelihood of households participating in FAFH.

On the household level of expenditure on FAFH, sex of household head, marital status, household size, income, and location are found to be associated with the level of expenditure on FAFH in Ethiopia while age of household head, literacy status, hours of work, and wage non-farm employment were found to be insignificant explanatory factors of FAFH consumption expenditure. The level of FAFH expenditure is significantly higher for male-headed households than for female-headed households. That is, not only are male-headed households likely to consume FAFH but they are also more likely to spend more on FAFH (see also Terin, 2019). The level of expenditure on FAFH decreases with the household head being married as they are less likely to eat FAFH. While larger households are less likely to consume FAFH, conversely, they spend more on FAFH for those that choose to consume FAFH, consistent with the findings of Terin (2019) and Blick, Abidoye and Kirsten (2018) among others. It makes sense that, the level of expenditure on FAFH is directly proportional to the size of the household.

The income level of a household is found to be directly related to the level of expenditure on FAFH such that, the higher the level of income, the more likely that such households will spend more on FAFH due to possession of higher purchasing power. That is, higher household incomes result in more disposable income, enabling families to indulge in FAFH. The positive relationship between the level of income and the level of FAFH consumption expenditure in Ethiopia has been confirmed in other studies elsewhere (e.g., Blick, Abidoye & Kirsten, 2018; Pandey *et al.*, 2020; Godbharle, Jeyakumar & Kesa, 2022). Finally, the

location plays an important role in determining expenditure on FAFH. Contrary to expectations (e.g., Lee & Tan, 2007), the results suggest that the level of expenditure on FAFH consumption is higher in rural areas than in urban areas. Godbharle, Jeyakumar and Kesa (2022) also found that urban residence increased participation in FAFH but found contradictory results that urban residence increased expenditure on FAFH.

In Table 4, we compute the marginal effects (at means) of the independent variables on participation in FAFH. The result indicates that the sex of the respondent, marital status, household size, literacy rate, hours of work, and income are significant determinants of the decision to participate in FAFH.

Table 4
Marginal Effects of FAFH participation equation

Variables	dy/dx	Std. Err.
SexHHH	1.0151***	.1462
logAge	-.2654	.1729
Married	-.6556***	.1590
ihsHHsize	-.4634***	.1144
Literacy	.3883**	.1346
ihsHours	.1610***	.0356
logIncome	.3542***	.0163
WageNFE	.0692	.1552
Location	.1014	.1352

*** p<0.01, ** p<0.05, * p<0.1

Male-headed households increased the likelihood of participating in FAFH relative to female-headed households in Ethiopia. The results indicate that male-headed households increased the likelihood of participation in FAFH by about 1.0151 relative to female-headed households. The result is consistent with Blick et al. (2018), who find that males were more likely to participate in FAFH, which could result in their increased expenditure on FAFH.

Married people were less likely to participate in FAFH compared to unmarried persons. Being married reduced the likelihood of participating in FAFH by about 0.6556 relative to unmarried persons. Household size also plays a significant role in determining participation in FAFH. The results indicate that larger households reduced the likelihood of participating in food activities away from home. Households were 0.4634 percent more likely to reduce their participation in FAFH for every 1 person increase in the number of household members.

The literacy status of a respondent also plays a significant role in determining participation in FAFH. People who are literate are more likely to participate in FAFH than people who are not literate. The result in Table 4 indicates that being literate increased the likelihood of participation in FAFH by about 0.3883 percent compared to people who were not literate. The number of hours worked also increased the likelihood of participating in FAFH. The results show that the higher the number of hours spent at work, the more likely the household will participate in FAFH. An hour increase in the number of hours spent at work increased participation in FAFH by about 0.1610.

Higher incomes increased participation in FAFH, as indicated in Table 4. The results indicate people with higher incomes were more likely to participate in FAFH than people with lower incomes. Households were 0.3542 more likely to participate in FAFH with every 1-birr increase in their income level. The result is consistent with the works of Pandey et al. (2020) and Godbharle et al. (2022).

CONCLUSIONS

Food-away-from-home (FAFH) consumption is fast becoming a trend in developing economies and thus, has implications for the agricultural sector. This study examined the factors that influence FAFH consumption and expenditures in Ethiopia drawing on cross-sectional data from the 2018 Ethiopia Socioeconomic Survey (ESS). Before a positive expenditure on FAFH can be realized, households must first decide to consume FAFH, hence the Double-Hurdle technique was employed on the econometric estimations. The study revealed that a considerable number of households in Ethiopia (about 44%) participate in FAFH consumption. The probability of consuming FAFH increases with being a male household head, not being married, smaller household size, being literate, working long hours, and residing in an urban location. On the level of household expenditure on FAFH, the sex of the household head, marital status, household size, income, and location are found to be significant determinants. The study concludes that FAFH consumption is gaining importance among households in Ethiopia as evidenced by the incidence of FAFH consumption and level of household expenditure committed to FAFH consumption. The phenomenon of FAFH consumption and FAFH consumption expenditure in Ethiopia is driven by various socio-demographic factors. A key driver of the level of expenditure on FAFH consumption identified is the level of household income, with higher-income households spending more on FAFH consumption.

It should be noted that the current study, being cross-sectional, may be subject to the limitations of cross-sectional studies in that individual heterogeneities cannot be accounted for. Future research in this area should consider a panel approach, subject to data availability. Notwithstanding, the study has important policy implications. The findings may serve as a useful guide to suppliers of FAFH in their marketing strategies, especially their market segmentation strategies. Developing countries need to refocus their agricultural and agribusiness policies as increasing consumption of FAFH has implications for local agricultural production. The changing consumption pattern towards FAFH may require changes in production practices, supply chains, and food hygiene and quality practices.

Research ethics statement

This article is the author's own original work, which has not been previously published elsewhere.

Author contribution statement

All authors contributed equally to the development of the article.

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