Personality and performance of household non-farm enterprises in Ghana

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Abstract

The study investigates the relationship between personality traits of operators of household non-farm enterprises and performance in Ghana using the first two waves of the EGC-ISSER socio-economic panel survey. Results based on OLS, Random effects and Hausman and Taylor models are presented using 1,280 enterprises in both waves. The Big Five personality model of 44 items was used to measure the traits. The study finds a positive relationship between extraversion and enterprise performance while emotional instability and openness have negative effects on performance. The results are consistent with the practice of bargaining for prices in the informal sector. This evidence of a strong relationship between specific traits and performance could inform trainers of employees in formal and informal labour markets not to focus on developing only cognitive skills but also non-cognitive skills.

Keywords:

Personality, Household Non-farm enterprises, Ghana

Introduction

Household non-farm enterprises or Household enterprises (HEs) constitute a very important source of employment and as an option for diversified sources of income in Ghana. The success of these household non-farm enterprises should interest economic and social policymakers in developing countries where labour is a major asset (Teal, 2011). HEs have become crucial because of the inadequate number of non-farm jobs that pay wages or salaries (paid employment). Apart from engaging household members in unpaid terms, individuals outside the household may be employed. HEs are mostly nonagricultural-micro enterprises that are owned and operated by members of a household, are informal and unincorporated (Fox and Sohnesen, 2012). Data for these types of enterprises are produced in household surveys and not in enterprise surveys. Shocks and risks that affect the household also affect the fortunes of HEs.

The owner of HEs are entrepreneurs in a different sense compared to the traditional entrepreneur. Essentially, entrepreneurs are risk takers and tend to invest greater proportion of their profits for growth. Owners of HEs operate mostly for the sake of survival and spend almost all their profits. Scase (1998, p14) referred to owners of HEs as "proprietors" rather than entrepreneurs while Kumar (2017, p7) described them as "reluctant entrepreneurs". The enterprises are characterized by low productivity and often deal in basic goods and services as well as operate closer to the household's residence (Nagler and Naudé, 2014).

Some authors use the term non-farm enterprises, microenterprises and non-farm entrepreneurship interchangeably (Abdulai and Delgado, 1999; Masakure et al. 2009; Kinghan and Newman, 2015; Nagler and Naude, 2014). A significant part of the literature on HEs focus on the rural economy (Ackah, 2013; Dary and Kuunibe, 2012; Senadza, 2012; Jha, 2011). Vijverberg (1995) referred to HEs as family enterprise, entrepreneurship, self-employment or small-scale entrepreneurship and explained two major differences between the literature on HEs and Small and Medium Scale Enterprises (SMEs). First, data on HEs are produced in household surveys whereas data on SMEs are produced in traditional enterprise surveys where deeper information on enterprises are obtained. The second difference is that data on traditional SMEs are obtained by sampling from a population of enterprises while data on HEs involves sampling households with some households having multiple HEs. One would expect that since SMEs are more likely to keep records as compared to HEs, their data would probably be more reliable.

Several factors contribute to the success of HEs. For instance, political connections and social capital helped in establishing and operating HEs in Vietnam (Kinghan and Newman, 2015). Capital is surely needed in setting up and successfully running an enterprise, but results by Fafchamps et al (2011) show that capital alone may not be enough for the success of HEs, but in addition, a sense of self-control over the profits

of the business is helpful. Karlan et al. (2012) confirmed this and added that poor management skills also limit the extent of experimentation and performance. Solving capital constraints by resorting to micro-credit often results in paying high interest rates to microfinance firms and other lenders, leading to the closure of many household enterprises (McIntyre, 2001). Other challenges in the sector listed by Abor and Quartey (2010) are lack of adequate technologies and equipment, problems with regulations and government rules.

On a positive note, Jones and Tarp (2015) showed that informal work outside agriculture could yield returns that are higher than those in paid employment. HEs are inclusive (Kumar, 2017) as women are overrepresented in small enterprises with low growth (Mead and Liedholm, 1998). Another positive aspect is that household welfare measures for workers in the non-farm self-employment sector are better than those in agriculture (Gindling & Newhouse, 2012). Fox and Sohnesen (2012, p26) showed that setting up a household enterprise has "the same marginal effect on consumption as private wage and salary employment". Thus, household non-farm enterprises could help many people to move a bit away from poverty (Mead & Liedholm, 1998). Considering the additional non-monetary benefit of the perceived "freedom" of working for themselves, deciding to set up a household enterprise may be rational (McIntyre, 2001). One advantage is that HEs are associated with less inequality than non-farm wage employment (Senadza, 2011).

HEs are seen as a strategy for diversifying sources of income for rural-farming households (Kinghan and Newman, 2015; Ackah, 2013). However, in the case of poor urban households, they sometimes constitute the main source of income for the household when wage employment is unavailable. Some non-poor urban households also operate HEs. One way of classifying HEs in developing countries is by using the growth prospects that the owner perceived before setting up the enterprise (Gindling & Newhouse, 2012). The prospects could be innovative and ambitious, serving a need in a market. In some cases, the owner does something similar to what others are already doing, instead of being unemployed. With dwindling prospects of getting a paid employed job (Aryeetey & Baah-Boateng, 2016) and no unemployment insurance, one cannot afford to be unemployed for a long time (Baah-Boateng, 2015). Most people in SSA are engaged in informal economic activities, farming or nonfarm, that are owned and managed by the household (Fox and Sohnesen, 2012). This explains the low unemployment rates in the region, as individuals cannot afford to be unemployed with no insurance payouts (Page and Shimeles 2015). This observation creates a kind of mindset which has direct link with the behaviour of operators and thus affect the growth and transformation HEs.

Indeed, the performance of HEs is also linked to education, skills and more importantly the behavior and character traits of individuals in the households who operate the enterprise. Thus personality traits and cognitive traits of operators of HEs constitute an important determinant of the performance of the enterprise, as has been shown in the case of wage determination in paid employment (Nyhus & Pons, 2005; Braakmann, 2009; Nandi & Nicoletti, 2009; Heineck & Anger, 2010). This paper thus seeks to investigate the relationship between the personality traits of the operators of HEs and the performance of such enterprises in Ghana using two waves of household panel data. Most studies that have investigated the relationship between personality traits and HEs focused on the intention to enter self-employment (Rauch & Frese, 2007; Caliendo et al., 2014; Espíritu-Olmos & Sastre-Castillo, 2015). Katongole et al. (2013) and Farrington (2012) focused on performance using African samples, but with small convenience samples and less rigorous methodologies. This study adopts a more rigorous quantitative approach (i.e. Hausman-Taylor, pooled model and random effects estimation techniques) to a relatively larger sample of panel data from Ghana to establish empirical relationship between performance of HEs and personality traits.

Household non-farm enterprises in Ghana

Fox and Sohnesen (2012) studied eight countries in Sub-Saharan Africa (SSA) including Ghana and reported that about 40 percent of households depend on HEs. It is expected that these enterprises will continue to be a major feature of employment in SSA (Thomas, 2015). About 26 percent of the country's workforce are mainly employed in this sector as compared to an average of 15 percent for eight SSA countries (Fox & Sohnesen, 2012). Employment in household non-farm enterprises is dominated by own account work (or self-employed without employees) and contributing family work (or unpaid family work) and operated on informal basis. There are however few wage employees who are engaged in or set up household enterprises as secondary jobs. Table 1 presents key information and statistics about household enterprises in Ghana. It indicates a declining proportion of households with a non-farm enterprise from about half in 1998/99 to 46.4 percent in 2005/06 and further down to 44.3 percent in 2012/13. Most of the operators of HEs are women (72 percent in 2006 and 70.6 percent in 2013). About half of the enterprises are into trading (Table2), selling food or nonfood items (clothing, footwear, household items and hardware or building materials) in small shops. The other half is shared between petty manufacturing (tailoring or dressmaking, woodwork and construction) and other services (hairdressing, repair of household electrical appliances, driving and others).

Table 1: Characteristics of household enterprises in Ghana in 1998/99, 2005/06 and 2012/13 (%)

Characteristics of household enterprises in Ghana	1998/99	2005/06	2012/13
Proportion of households with a nonfarm Enterprise.	49.0	46.4	44.3
Proportion of enterprise operated by females	66.3	72.0	70.6
Distribution of the industry of enterprise			
Manufacturing	23.9	17.1	20.9
Trading	56.1	49.5	52.4
Other	20.0	33.3	26.7
All	100.0	100.0	100.0

Source: *Ghana Living Standards Survey (GLSS) Rounds 4, 5 and 6, Ghana Statistical Service.*

Personality Traits as element of Human Capital

Theoretically, the link between personality traits and enterprise performance is anchored on human capital theory that posits that individuals with more or higher quality human capital will reap more desirable outcomes (Becker 1964). According to OECD (2001) human capital refers to the knowledge, skills, competencies, and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being. Thus, human capital has various dimensions some of which are acquired through training, education and labour market interaction whilst others are inherent in the individual personality and invariably acquired from birth. While education, skills and qualification; work experience; and soft skills such as communication and social skills are acquired through education, training and labour market engagement, habit and personality traits are invariably acquired from birth.

Personality traits have been defined by Roberts (2009, p9) as "the relatively enduring patterns of thoughts, feelings, and behaviours that reflect the tendency to respond in certain ways under certain circumstances". The individual traits are assumed to be stable even though not completely fixed (Heckman & Kautz, 2012) and can be inferred from efforts and actions by individuals in the manner of latent variables (Almlund et al., 2011). Personality traits are sometimes described as non-cognitive traits or skills to differentiate them from purely cognitive traits related to mental capacity and education (Cobb-Clark & Schurer, 2013). Personality traits have been shown to predict cognitive measures like achievement test scores and grades (Borghans et al., 2011). Even though, there is a biological heredity to personality traits which are often established early in the life of the individual, the socio-cultural environment where the individual is nurtured can diminish the traits.

The Big Five Theory of Personality Traits

There are different dimensions and measures of personality traits which can be collapsed into Big Five instruments called the Big Five Inventory (BFI) based on 44 questions, which gives reliable measures of the core attributes of personality (John & Srivastava, 1999). The Big Five Factor model is the most prominent or popular model in measuring personality traits by psychologists (Dohmen, 2014; McAdams & Olson, 2010). Each of the five traits (extraversion, agreeableness, conscientiousness, emotional instability or neuroticism and openness to experience) are measured with eight or nine questions whose scores are added up to form a measure of the trait. Each person self-reports by providing a score for each question that describes him or herself.

The first trait – extraversion – involves preferring to be with other people, outgoing, enthusiastic and assertive, rather than being quiet or reserved. Individuals with higher levels of extraversion enjoy speaking or interacting with other people. The second, agreeableness represents the desire to be helpful to others, trusting, forgiving and being considerate or caring. It involves a desire to help others rather than being selfish. Conscientiousness is the third trait and captures the ability of individuals to persevere to finish a job and being a reliable worker, rather than being distracted or disorganized. Conscientious individuals work efficiently, follow on plans and are reliable workers rather than being lazy or careless. Individuals who have trait of emotional instability or neuroticism worry a lot, have occasional mood swings, and get tensed or nervous easily. Neurotic individuals are less calm, don't handle stress well, easily get upset and prone to being depressed. The last trait, openness to experience, involves being original, desiring to bring new ideas and being curious. It also involves deep thinking, having active imaginations, being inventive and less likely to desire routine work.

Each of the five traits is measured with a level of reliability. The range of the Alpha reliability measures for internal consistency for each personality trait is comparable to those found in the literature (Extraversion: 0.6, Agreeableness: 0.75, Conscientiousness: 0.80, Neuroticism: 0.65, and Openness: 0.74). Measuring the big five traits in different cultures with the same model is not without controversy. Laajaj et al. (2019) report on the difficulty of getting reliable measures outside the regions where they were developed (western, well-endowed and educated).

Personality Traits and Enterprise Performance: Literature Survey

Cognitive traits have been shown to contribute to enterprise success (Kremer et al., 2016; Jolliffe, 1998). Returns to demographic characteristics like education, which mainly represents cognitive abilities dominate the literature for formal and informal labour markets compared to non-cognitive measures (Phillips, 1994; Vijverberg, 1995; Day & Newburger, 2002; Luo & Terada (2009). Soft skills like personality traits causally

determine success in the labour market just like cognitive abilities (Heckman and Kautz, 2012). One major reason is that some of the characteristics enhance work and must be valued just like cognitive abilities (Mueller & Plug 2006).

Using meta-analyses Rauch and Frese (2007) and Zhao et al. (2010) provided evidence to show strong relationships between personality traits and the intention to enter self-employment and later performance of the enterprise. The meta-analyses by Rauch and Frese (2007) involved 116 studies and focused on owners' traits and their effect on business creation and its success. Apart from the Big Five, other traits like internal locus of control, risk-taking, need for autonomy, self-efficacy, self-confidence and others were considered. Traits like innovativeness, proactive personality and generalized self-efficacy were found to have strong effects on business success. The study by Zhao et al. (2010) focused on the Big Five and risk-taking, using 60 other studies. In terms of performance, four of the traits were found to have strong positive relationships with the firm's performance (openness to experience, conscientiousness, extraversion and emotional stability).

These results are similar to those found by Singh and DeNoble (2003) based on descriptive analysis. A study by Zainol and Ayadurai (2011) using a Malaysian sample reported that the personality traits are good predictors of firm performance. A study by Farrington (2012), reports that three of the Big Five traits (extraversion, conscientiousness and openness to experience) have positive relationships with a measure of financial performance while the growth of enterprises has a positive relationship with openness, and a negative relationship with emotional instability. Katongole et al. (2013) concluded that women who are very conscientious and those with higher extraversion are more likely to be successful in their business or have higher sales.

Hatani and Farhan (2015) observed positive relationships between personality traits and the performance of small and medium scale enterprises. Extraversion, in addition to agreeableness, has been cited as strong predictors of the success of entrepreneurial ventures (Baluku et al., 2016). A study by Waheed et al. (2017) on the personality traits of salespersons and their performance found that extraversion was the most valuable trait in explaining sales as compared to the other four personality traits of the Five-Factor Model. The main underlying reason is the talkative and assertive nature of individuals with high levels of extraversion. In a recent study, four of the traits, except emotional instability, have been shown to have a positive relationship with how a new venture would perform (Dai et al., 2019). Franco and Prata (2019) provided evidence of a positive relationship between enterprise performance and three of the traits (extraversion, conscientiousness and openness) and an expected negative relationship with emotional instability. A recent review of published works by Gunaratne and Koggalage (2020) on the personality trait that is mainly associated with enterprise success reported that extraversion is cited more often than the other traits.

A few studies focus on the self-employed or entrepreneur as a leader and related their personality to the performance of the enterprise. Two of the traits (extraversion and conscientiousness) of leaders have been shown to improve team performance (Li et al., 2015). Even in enterprises that focused on social relations, extraversion of the entrepreneur helps in developing service programmes for the workers, while neuroticism and conscientiousness significantly predict how personal issues are handled (Liang et al. 2015). The study by Kwarteng and Li (2015) in Ghana reported a weak positive influence on SMEs growth if the entrepreneur is competitive and aggressive even though the big five traits were not measured. These results have been replicated by Anwar et al. (2017), who found that all the big five traits of entrepreneurs, with the exception of emotional instability, predict higher performance of workers.

Relating the personality of an individual and the entrepreneurial intentions is popular in the literature on entrepreneurs. An interesting study based on the German Socio-Economic Panel focused on the extent to which the big five determine entry into and exit from self-employment (Caliendo et al., 2014). Traits like extraversion, openness and tolerance of risk were reported to positively determine entry into self-employment. They also compared the explanatory power of personality traits with that of education in self-employment and reported comparable strength of associations.

The trait of extraversion has been found to be important in pursuing self-employment (Espíritu-Olmos & Sastre-Castillo, 2015). In contrast, out of the five traits, Murugesan and Jayavelu (2017) reported that only extraversion was not found to have a positive relationship with entrepreneurial intentions. Bernardino et al. (2018) described social entrepreneurs as having higher than average levels of all the big five traits as compared to non-social entrepreneurs. Recent studies like Şahin et al. (2019) and Nunfam et al. (2020) have also reported that personality traits are strongly associated with entrepreneurial intentions or intentions to venture into self-employment.

The behaviour of enterprise operators can strongly be linked to the enterprise's outcomes as compared to when a person works for another person. There are two main streams of literature on what determines the performance of an enterprise, the market structure of an industry and the resources that are available to particular firms (Tirole, 1988). Using the resource-based theory on a Ghanaian sample of microenterprises, Masakure et al. (2009) listed three main types of resources available to an enterprise: entrepreneurial resources, organizational resources and technological resources. The personality trait of the operator of an enterprise is an aspect of the entrepreneurial resources available to an enterprise. Caliendo et al. (2014) explain that success in small firms depends on the decisions and strategies of the entrepreneur, which in turn depend on the personality of the entrepreneur.

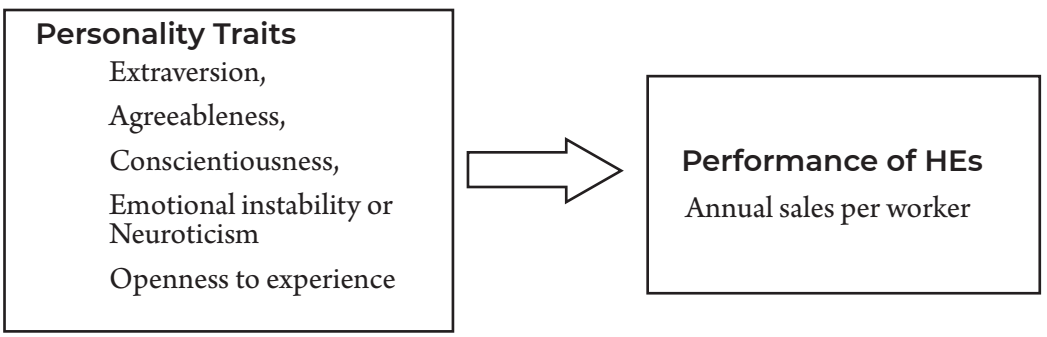
Another channel through which personality traits can influence the performance of an enterprise is how networks are handled (Rauch & Frese, 2000). The manner in which a network of customers, debtors, creditors and other business partners are managed would affect the performance of an enterprise. It is expected that personality traits would affect how networks of an enterprise are handled. This would depend on the nature of the business or the main type of activity in the business.

Econometric Analysis

Conceptual Framework

The purpose of this study is to develop a model to capture the relationship between personality traits and HEs performance. As already outlined, personality traits are categorized into the Big Five traits that have implications for greater performance of HEs. In this study, enterprise performance is measured by annual sales per worker and the link with personality traits is given in Figure 1.

Figure 1: Conceptual Model linking Big Five Traits and performance of HEs



Model Specification

To examine the link between personality traits and the performance of HEs in Ghana using the resource-based theory of enterprises, a regression model is specified and estimated with a measure of the performance of enterprises as the independent variable and measures of the resources available to each enterprise as the explanatory variables.

$$InP_{it} = \alpha_{0+}\beta T_i + \theta X_{it} + fi + \varepsilon_{it} \quad \text{.....(1)}$$

Where InPit is the logarithm of the annual sales per worker for enterprise i and time t; Ti represents the Big Five Personality traits of the operator of the enterprise (which is assumed time-invariant in this study); Xit denotes measures of the other resources of the enterprise that determine performance; fi is the enterprise fixed effects and Ɛit is the error term.

Personality traits, which are the focus of this study, are time-invariant, measured in only the first wave of the data. This means fixed effects cannot be used even though it is a better fit compared to the random effects model. The panel model by Hausman and Taylor (1981) is estimated and compared with the pooled model and random effects model. Since the Hausman-Taylor model is a weighted instrumental variable estimator, the reliability of the results also depends on test of the validity of the instruments used in the estimations. The Sargan–Hansen over identification test is computed to check the validity of the instruments. The variables that are assumed correlated with the fixed effects in the HT model are the years of schooling, number of years of operating the enterprise and the value of assets in cedis.

Data for Estimation

The HEs section of the first two waves of the EGC-ISSER socio-economic panel survey forms the main data sets for this study. The baseline was produced in 2009/2010 and the second wave was conducted in 2014/2015. The data contains 1280 enterprises in both waves, 978 enterprises added in wave two and 798 enterprises from wave one that were not repeated in wave two. This data was chosen for the study because it comprehensively measured the big five personality traits in a nationally representative survey. About 55 percent of the enterprises in the data are into trading, 21 percent in petty manufacturing and 24 percent involved in other activities, mostly services. Based on the conclusions from Vijverberg (1992) on various measures of the performance of HEs, the amount of annual revenue per worker, also used by Nagler and Naudé (2014), has been adopted in this study. Descriptive statistics of the variables used in the empirical estimations are presented in Table 2.

Table 2: Descriptive statistics of variables in the estimations

Variable	Obs	Mean	Std. Dev.	Min	Max
Log of sales per worker (performance)	4259	7.696	1.434	0.708	12.594
Extraversion-standardized	3541	0.158	1.029	-2.785	2.624
Agreeableness-standardized	3540	0.068	1.042	-4.035	1.136
Neuroticism-standardized	3541	-0.081	1.031	-1.767	4.107
Openness-standardized	3541	1.033	0.352	-0.283	2.003

Conscientiousness-standardized	3540	0.236	0.965	-3.552	1.130
Male dummy (relative to females)	4311	0.305	0.461	0	1
Age of individual in years	4311	43.505	13.310	0	100
Square of age/100	4311	20.698	12.884	0	100
Years of schooling	4308	7.064	4.473	0	17
Married/consensual union dummy relative to (unmarried)	4311	0.662	0.473	0	1
Dummy of having informal savings account (agaist having formal savings account)	4311	0.479	0.500	0	1
Dummy for having other paid employment (against none)	4311	0.049	0.216	0	1
Access to electricity at home dummy (relative to none)	4311	0.770	0.421	0	1
Number of kids under 12 years in household	4311	1.234	1.350	0	12
Urban dummy (relative to rural)	4311	0.574	0.495	0	1
Trading enterprise or commerce dummy	4311	0.557	0.497	0	1
Manufacturing enterprise dummy (relative to others)	4311	0.207	0.405	0	1
Annual enterprise hours/100	4310	28.391	24.605	0	237.6
Value of assets in enterprise/100	4309	0.105	0.417	0	17
Loan amount-last 12 months/100	4311	1.034	6.305	0	240
No enterprise registration dummy (relative to registered)	4311	0.810	0.392	0	1
Number of years of operating the enterprise	4256	9.078	8.939	0	65
Wave 2 dummy	4311	0.515	0.500	0	1

Results and Discussions

The results from the pooled OLS, random effects, fixed effects and from the Hausman-Taylor model are presented in Table 3. A test of overidentification or the reliability of the instrumental variables in the HT model with a Sargan-Hansen test resulted in a weak rejection at 10 percent. The second test, a Hausman test, to check if the fixed effects estimates and those from the Hausman-Taylor model are not systematically different failed to be rejected. This implies that the results in model 4 of Table 3 are consistent and efficient.

In line with prior expectations explained in Brandstätter (2011), the results show that the personality trait of extraversion is positively related to performance of HEs in Ghana. A one standard deviation increase in the measure of the trait is associated with between 7 percent (model 4) and 9 percent higher performance. This obsrvation is consistent

with the findings of Gunaratne and Koggalage (2020) and Franco and Prata, (2019) that extraversion has positive effect on enterprise performance can be explained by referring to the practice of bargaining for prices of items or services sold in the informal sector. A seller who can speak very well to convince buyers is likely to sell more and at slightly higher prices than otherwise.

A neurotic or emotionally unstable enterprise owners have lower performance. A one standard deviation increase in the measure of emotional instability is associated with about 9 percent lower performance on average (from the pooled OLS and the random effects models). However, the coefficient is lower and not significant in the Hausman-Taylor model. The results on openness to experience are also unexpected. The coefficients of openness have relatively high magnitudes and are negative instead of the expected positive signs found by Farrington (2012) in South African. This is compatible with enterprise owners engaging in the same activities that others are already involved in and not bringing new ideas.

Agreeableness and, surprisingly, conscientiousness traits proved to have no strong relationship with enterprise performance. It was expected that since most people in HEs are working for themselves, they would be motivated to work very hard and be rewarded with higher productivity, resulting in a strong positive relationship between conscientiousness and enterprise performance.

Table 3: Panel results of the log of sales per worker-household nonfarm enterprises in Ghana.

Dependent variable: log of real sales per worker	(1)	(2)	(3)	(4)
VARIABLES	Pooled OLS	Random Effect	Fixed Effect	HTaylor
Extraversion-standardized	0.0833***	0.0914***		0.0717**
Agreeableness-standardized	-0.0266	-0.0349		-0.0257
Neuroticism-standardized	-0.0962***	-0.0898***		-0.0470
Openness-standardized	-0.1687**	-0.2629***		-0.2976***
Conscientiousness-standardized	-0.0022	0.0380		0.0085
Male dummy	0.2812***	0.3003***		0.1509*
Age of individual in years	0.0581***	0.0549***	0.1239	0.0649***
Square of age/100	-0.0704***	-0.0663***	-0.0630	-0.0667***
Years of schooling	0.0318***	0.0326***		0.1301***
Married or consensual union dummy	-0.0135	0.0232	-0.0140	0.0477
Formal or informal savings account (0/1)	0.3298***	0.3357***	0.1573*	0.2260***

Having other paid employment (0/1)	-0.2661**	-0.2064*	-0.3417	-0.3843***
Has access to electricity at home (0/1)	0.1862***	0.1752***	0.0655	0.0467
Number of kids under 12 years in household	-0.0412**	-0.0249	0.0653	0.0214
Urban locality (rural as base)	0.0911	0.1367***		0.0508
Trading enterprise dummy	0.5779***	0.5438***	0.3771***	0.4977***
Manufacturing enterprise dummy	0.0438	-0.0162	0.0570	0.0034
Annual enterprise hours/100	-0.0003	-0.0000	0.0016	0.0009
Value of assets in enterprise/100	0.2558***	0.2156***	0.1158*	0.1208**
Loan amount-last 12 months/100	0.0134***	0.0117***	0.0025	0.0055
Dummy for no registration of enterprise	-0.1394**	-0.1558**	-0.2130*	-0.0853
Number of years of operating the enterprise	0.0225***	0.0217***	0.0196***	0.0178***
Wave 2 dummy	0.3566***	0.3524***	0.0385	0.3192***
Constant	5.5467***	5.6837***	3.0754	4.8258***
Observations	3,453	3,453	3,453	3,453
R-squared	0.1825		0.0875	
Number of pe_id		2,670	2,670	2,670
Robust standard errors in parentheses-*** p<0.01, ** p<0.05, * p<0.1				

Source: Author's computations from the data EGC/ISSER Panel data.

The results of the effect of other controls on the performance of HEs are mixed. The results show a strong positive effect of education on firm performance with higher magnitude of the coefficient of years of schooling between the Hausman-Taylor model and pooled OLS model. HEs owned by females performed worse than those of males on average, whilst the performance of rural enterprises was better than those in urban areas and are consistent with the findings of Nagler and Naudé (2014). Enterprise operators who kept formal or informal savings accounts performed better than otherwise. Trading enterprises performed better than manufacturing or other services, while older enterprises performed better than young enterprises. The coefficient of the value of assets of HEs is strongly significant implying high returns to capital in HEs and confirms earlier results by Ackah (2013).

From the results, one wonders if the relationship between the traits and the performance of HEs also depends on the nature of the business engaged in by the enterprise. Further estimations for each of the three types of enterprise activities (trading, manufacturing

and others) were done. The results show that none of the Big Five traits has a strong relationship with performance in manufacturing enterprises. The sign of the coefficient of openness to experience is now positive even though not statistically significant as compared to the negative coefficient found for trading and other enterprises. It appears that the coefficients for openness in the estimations for trading and other enterprises are not statistically significant because the power of the test falls with smaller sample size. Estimations for trading and other enterprises together produce a negative and statistically significant coefficient. Other enterprises and trading have driven the strong results on extraversion for the whole sample.

Conclusions

Non-farm enterprises owned and operated by households have been an essential source of employment in Ghana. This study has investigated the relationship between personality traits and the performance of household non-farm enterprises in Ghana using the resource-based theory on a panel sample of Ghanaian household micro-enterprises. It is argued that personality traits represent entrepreneurial resources that could enhance the performance of an enterprise including handling a network of customers, debtors, creditors and competitors efficiently.

Measuring performance of an enterprise with annual sales per worker, results from a Hausman and Taylor (1981) estimation point to a reward for extraversion in household non-farm enterprises in Ghana. Agreeableness and conscientiousness have no strong relationship with performance. Two traits, neuroticism (emotionally instability) and openness to experience have negative relationships with performance in non-farm household enterprises. The strong relationship between extraversion, neuroticism and openness has been driven by enterprises in trading and other services and not by those in manufacturing activities. The results are consistent with the practice of bargaining for prices of items or services sold in the informal sector.

The results in this study confirm the importance of personality traits or soft skills in small enterprise performance. The implication is that training of individuals in formal or informal settings should focus on developing cognitive skills and influencing their soft skills. Employment interventions like the apprenticeship training program in Ghana and other programs to improve workers' technical skills could incorporate elements in personality development, especially for the youth who are still in the development of their personality traits.

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