ISSN 2229-5518

Data Treatment, Childlessness and Singleness for Better Policy Proposition in Entrepreneurial Literature

AKANGA REUBEN Johnson

Abstract— This short note gathers from a literature survey evidence of the inefficiency of entrepreneurial findings in leveraging policy orientation and implementation on large group of people to boost supply in entrepreneurship, especially from unemployed youths. Meanwhile, governments, international organizations and various stakeholders are spending huge funds to prepare the environment or rather, to make it conducive for entrepreneurial development. An accusing finger points at research design and data analysis directed toward theoretical formulation and testing. The author offers data analysis treatments that are policy oriented and proposes gaps which findings could be of great help to policy makers. More precisely, composite index and latent class analysis are presented as better methods leading to policy orientation. These methods conveniently handle the multi-dimensional measure of personality traits, entrepreneurial development and entrepreneurship conceptual framework. Furthermore, the role of singleness and childlessness in inhibiting or promoting entrepreneurial development for economic and social inclusion is not quite clear; though it is well known that they are inherent attribute that foster social exclusion.

Index Terms — Childlessness, Composite Index, Entrepreneurship, Entrepreneurial Development, Latent Class Analysis, Personality Trait, Singleness.

1 INTRODUCTION

Social scientists of all fields will agree that the concept of Entrepreneur has attracted world stakeholders both from politico-institutional and academic arena. Yet to our knowledge, there has never been a discipline whose underlying concept is boundless, ever dynamic, and multifaceted with each tentacle blur-ended. Entrepreneurship, Entrepreneurial Personality theories, social entrepreneurship and Entrepreneurial Development, these are but a few of the tentacles which spurt in an attempt to apprehend the basic object but instead of converging scientific opinion, content scientific debate to fictional heuristic. Evidence is the definition of an entrepreneur (see also [1]).

According to Bula [2] Economics Scholars have laboured in trying to define entrepreneurship, but have hardly arrived at a unifying definition. The fact is that Entrepreneurship is a multidimensional concept [3] and despite the overwhelming interest carried on the object by various stakeholders, Entrepreneurship scholars from psychology, sociology, behavioural science and economics have been more concerned with the who, why and how of entrepreneurship rather than providing key areas in which policy-makers can leverage to boost the impact of entrepreneurship development in developing countries [4], [5].

This state of affairs described as a 'scholarly disconnect' [6], can be attributed to data analysis orientation. Most scientific production in the domain have focused on theoretical formulations and testing [7], [8], [9]. While this seems to be useful for academic brainstorming to satisfy epistemological grounding; governments, donors and international development agencies greatly rely on research findings to entrepreneurship for policy orientation and implementation for economic development and growth and most especially, to achieve the post millennium goals.

Why does this matter? First, it is widely believed that entrepreneurship is beneficial for economic growth and development. Second, entrepreneurship has been remarkably resurgent over the past three decades in countries that achieved substantial poverty reduction, such as in China which has become a model for low income countries. Third, donors and international development agencies have turned to entrepreneurship to improve the effectiveness and sustainability of aid [10]. These require that most of the scientific production on entrepreneurship be policy-oriented.

For an inclusive economic development and growth, singleness and childlessness should be given the same attention as ageing. Singleness and childlessness are inherent attribute which could inhibit entrepreneurial development in any society. Yet theoretical and empirical cases for understanding the role of singleness and childlessness to entrepreneurship are not yet known. Evidence on whether single and /or childless entrepreneurs have equal chances to prosper in any social milieu is not straightforward; how entrepreneurship amongst single and /or childless persons has been promoted and how they contribute to development in countries like China is not well understood; and whether, why and how single and/or childless entrepreneurs must be supported for an inclusive economic development and growth is taciturn.

This paper is interesting in that, it open a venue for policy-oriented findings towards enhancing and developing the supply of entrepreneurship in declining cities and rural areas of middle and low income countries in order to assist governments, donors and international development agencies to achieve post millennium goals. In fact studies have revealed that, entrepreneurship both create employments, innovate, fight poverty, reduce social inequalities, and restructure declining regions [11], [12], [13], [14], [15], [16], [17], [18], [19], [20].

The rest study is organized as follows: In section two, I present a brief critical literature review on entrepreneurship from various perspectives focusing on the shortcomings of current methodology in failing in providing solid grounds for policy

- *Dschang School of Economics and Management, University of Dschang (Cameroun). Tel: +237 243 623 836, BOX 110 DSCHANG Email: reuben.akanga@univ-dschang.org*

making. I give the rational for implementing composite index and latent class analysis. The third section is devoted to singleness and childlessness which I believe could improve our understanding of entrepreneurial development and a basis for policy making. Finally, a brief conclusion ends the paper.

2 Data Analysis in Entrepreneurial Literature

2.1 Economic Theory of Entrepreneurs

Economists are concerned with decisions that are relevant to resource allocation, which lead to particular economic outcomes, such as the performance of firms, industries, economic growth, development and countries. Generally, economists have not been concerned with individual entrepreneurs. However, that has not prevented certain economists from inferring and attributing specific personality characteristics to them (e.g. [21], [22]).

According to Schumpeter [21], [23], an entrepreneur is the coordinator of production and agent of change ('creative destruction'). Those who share this view do not contemplate entrepreneurship to be very important in earlier stages of economic development – they look at the contribution of entrepreneurship to be much more important at later stages of development, where economic growth is driven by knowledge and competition. At earlier stages of development, entrepreneurship may play a less pronounced role because growth is largely driven by factor accumulation [24]. So needless for any policy formulation at this stage, policy makers have to wait until findings show that the economy has passed through the early stage.

Baumol [25] defines entrepreneurs as 'persons who are ingenious and creative in finding ways that add to their own wealth, power, and prestige'. In his view, the supply of entrepreneur has always been sufficient, it is rather the distribution of entrepreneurial ability which is either allocated towards productive, unproductive, or even destructive activities depending on the reward structure that prevail in an economy. An insufficient supply of entrepreneurs does not explain underdevelopment in low-income countries; it is rather linked to institutional weaknesses that generates in a "lack of profit opportunities tied to activities that yield economic growth" [26]. From this perspective, policies should be directed toward improving the reward of productive activities such that the payoff of these activities would be greater than those of destructive activities (such as crime, drug trafficking, gunmen, etc.). The problem is that the bulk of economic activities fall under the informal sector along with destructive activities. Hence, it is not easy to determine the amount of payoff in a sector considered as black market due to non-availability of information. These reduce the efficiency of policies to promote entrepreneurship.

Kirzner [27] thought of the entrepreneur as somebody who eases adjustment to change by spotting opportunities for profitable arbitrage led by 'disequilibrium' situations in the market. He highlighted the opportunity-grabbing-for-profit nature of entrepreneurship [28] particularly in developing countries where market disequilibria are common.

In the same vain, some economists have modelled entrepreneurship as an occupational choice between self-employment and wage-employment [29], [30], [31]. Hence someone will become an entrepreneur if profits and the non-pecuniary benefits from self-employment exceed wage income plus additional benefits from being in wage employment. Entrepreneurship is thus often synonymous with self-employment. Because self-employment is often not by choice but by necessity, a distinction which is often made in between necessity[1] and opportunity entrepreneurs [Global Entrepreneurship Monitor (GEM) [32]; [33]].

Behavioural definitions also stress the risk-taking dimension of entrepreneurship. Kanbur [34] described the entrepreneur as one who 'manages the production function' by paying workers' wages (which are more certain than profits) and shouldering the risks and uncertainties of production. Such a definition is seen as very relevant for developing country contexts characterized by high risk and uncertainty and seems to be supported by the prevalence small and medium enterprises (SMEs).

Findings from economists fail to provide solid ground to anchor policy for promoting entrepreneurship because data analysis is largely causal based on regression. Moreover, their findings are guided within the framework of the big questions of 'what; how and where to produce and consume', as result, findings look at the role of entrepreneurship in economic development; the link or the contribution of entrepreneurship to economic growth. This outcome has produce policies to prepare the environment for entrepreneurial development (i.e. the demand side) instead of focus on individuals, promoting qualities and values that would make them better off as entrepreneurs (or the supply side).

A second reason for the weakness of policy is the introduction of Human capital theory [35], within the economic framework of the entrepreneur. T. W. Schultz's (1902–1998) theory concerns abilities that enable a person to exploit a profitable opportunity. This theory of human capital has since been extended to include, for example, parental occupation, gender, ethnicity/race, education, work experience and inherited wealth [36], [37], [38]. One problem with such research is that it aids prediction of self-employment , but not entrepreneurship per se (see [1]). Human capital theory may, however, be linked to institutional theory, where culture in the form of patriarchal pressure, for example, hinders women from entering self-employment [37], and the view that women find it more difficult to identify with small business men as a group [39]. Other human capital factors, such as education, show mixed results and are related to the type of industry (e.g. knowledge intensive).

Thus, human capital theory identifies some of the personal factors that limit or, in some instances, enable self-employment. It goes some way towards enabling the prediction of self-employment, given large cohorts, and reveals overall differences between countries (e.g. [37], [38]), but it does not explain why or how some individuals who enter self-employment manifest superior entrepreneurial performance whilst others are unable to grow their business, drop out or just remain self- employed. To develop an explanation, it is

[1] Self-employed refers to those individuals who work for themselves but do not employ other people; this is often characterised as a lifestyle choice as it does not constitute the entrepreneurial act of wealth creation or business founding [1].

necessary to ask whether there is something about the personality of entrepreneurs that enables them to exploit opportunities successfully, in a sustained way, resulting in socio-economic benefits.

2.2 Personality Traits Theories Applied To Entrepreneurs

Personality traits focus on the individual and thus could serve as a complement to economics findings for policy orientation. The emphasis by psychologists on 'individual differences' has obliged that they identify and measure 'traits': that is, psychological descriptors that are assumed to be predictors or part of the psychological make-up of individuals that cause them to be disposed to behave in particular ways. The assumption of causation enables psychologists to predict the likelihood of certain kinds of behavioural outcomes. Whilst this traditional approach to individual difference research predominates in psychology, it has not gone unchallenged [40], [41], implications are elaborated for understanding the entrepreneur [42].

The question of 'who is an entrepreneur' has proved to be highly controversial [42], [43], [44], [45]. Initially it was suggested that a single trait might be identified and from the early literature three possibilities were proposed: need for achievement, locus of control and risk-taking propensity.

The need to achieve is a drive to excel, to achieve a goal in relation to a set of standards. A person endowed with such a need will spend time considering how to do a job better or how to accomplish something important to them [46], [47], [48].

Rotter [49] developed the notion of 'locus of control of reinforcement' (LOC) as part of a wider social learning theory of personality. People with an internal locus of control are those individuals who believe themselves to be in control of their destiny. In contrast, people with an external locus of control sense that fate, in the form of chance events outside their control or powerful people, has a dominating influence over their lives [50].

In a literature survey undertaken by Rauch & Frese, [51] on entrepreneur's personality trait, they showed on a series of tables how the results such personality traits interrelated between goals, success, strategies, human capital and environment. Two tables are reproduced here for illustration.

Table 01: Need for achievement of business owners compared to other samples as in [51].

Study	N	r	comments
Begeley & Boyed, 1987	**239**	**.15***	**Founders vs. non-founders**
Cromie & Johns, 1983	**83**	**.01**	**Entrepreneurs versus managers**
Utsch, Rauch, Rothfuss & Frese, in press	**177**	**.50****	**Business owners vs. managers**
Bonnett & Furnham, 1991	**190**	**.09**	**Founders vs. non-founders**
Green, David & Dent, 1996	**207**	**.22****	**Entrepreneurs vs. managers**
Weighted mean correlation	**896**	**.21****	
Note. *P<.05. ** p<.01.			

Table 02: Locus of control of business owners compared to other samples as in [51].

Study	N	r	comments
Begeley & Boyed, 1987	**239**	**.01**	**Founders vs. non-founders**
Cromie & Johns, 1983	**83**	**.31****	**Entrepreneurs versus managers**
Brockhaus & Nord, 1979	**93**	**.02**	**Entrepreneurs versus moved and promoted managers**
Bonnett & Furmham, 1991	**190**	**.18***	**Rotter's economic locus of control**
Rahim, 1996	**526**	**.22****	**Entrepreneurs vs. managers.**
Green, David & Dent, 1996	**207**	**-.05**	**Entrepreneurs vs. managers**
Weighted mean correlation	**1338**	**.13****	
Note. *P <.05. ** p <.01.			

The weakness of these findings to orient policy is that it focuses on theoretical testing and thus, data analysis look for causal links between concepts and chi square test is carry to evaluate difference between groups.

Research on these traits as a characteristic of entrepreneurs and a predictor of entrepreneurial behaviour were by no means convincing. In response, researchers have developed more sophisticated models and measures and, have continued to search for other characteristic traits that might be prototypical of the entrepreneur. Recently, a five-factor has been put forward as solution to the structure of personality. The Big Five dimensions include Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A) and Conscientiousness (C) [52]. Each dimension comprises six facets or sub-scales. The claims are: there is a convergence between many researchers on the conceptual similarity of personality dimensions obtained from different structural models of personality; some researchers believe that the five-factor solution is a better psychometric account than previously proposed models; and research has been done to correlate factor scores found using different measuring instruments and the Big Five. The measuring instruments include the Myers-Briggs Type Indicator (MBTI) [53], the PPQ (Professional Personality Questionnaire), the Eysenck three-factor model [54], [55] and Cattell's 16PF [56], [57].

Deary and Matthews [52] also point out that, the arguments of critics of trait theory were fuelled by the fact that, there were so many different personality measurement instruments that it was hardly surprising that, it was so difficult to provide solid evidence of reliable and valid indicators of predispositions. True to this statement, personality measures included standard personality inventories like: the Myers-Briggs Type Indicator (MBTI) [53]; Learning Styles Questionnaire [58]; Leadership Opinion Questionnaire [59]; Team Role [60]; Survey of Personal Values (SPV) and Survey of Interpersonal Values (SIV) [61]; measure of creativity, specifically 'Alternate Uses' [62]. The consequence of this state of affair is that research findings have by and large been directed toward providing evidence of reliability and validity of the measuring instrument and the indicators of predispositions [1].

Gardner and Martinko [63], using the MBTI to study managers, outline the psychological types and the psychometric properties of MBTI and evaluate the scale on a number of criteria. On the whole, the authors excluded change agents, organisation development consultants and entrepreneurs from their study, and provided a critical review of some methodological issues associated with the studies they evaluated. This gave a useful and rigorously considered view of the utility of this psychometric instrument. They concluded that 'the low quality of much of this research has undoubtedly undermined the MBTI's reputation and created scepticism about its utility' [63]. This suggests that the MBTI provides additional information personality trait (unobserved variables) if data were treated properly and this might also be useful to policy makers.

Reynierse [64] took as his starting point the work of Carland et al. [43], which distinguishes between entrepreneurs who are growth oriented and small business owners who pursue lifestyle goals, and applied the MBTI scales to test the proposition that one can distinguish entrepreneurs by both type and conduct. He also wanted to show the value of trait psychology for understanding entrepreneurship. Prior works of the Carlands [65], [66] using MBTI revealed entrepreneurs as Intuitive–Thinking types and small business owners as Sensing–Judging types.

Amit et al. [67] examine the relationship of the entrepreneur's personality to long-term venture survival. They measure survival in two ways: (a) the likelihood that the venture will survive for at least 8 years; and (b) the overall lifespan of the venture. They used the 'Five-factors' MBTI personality scales to assess entrepreneurs on extraversion, emotional stability, agreeableness, conscientiousness and openness to experience. As hypothesised, the entrepreneur's conscientiousness was positively related to long-term venture survival. Contrary to expectations, they found a negative relationship between the entrepreneur's openness and long-term venture survival. Extraversion, emotional stability and agreeableness were found to be unrelated to long-term venture survival. Although according to Chell, [1], this study suggested that, it may be important to also measure some specific entrepreneurial traits and not simply the very broad general traits of the 'Five-factor', the MBTI is by far one of the instrument that have gained the recognition of psychologist in personality trait measure.

Envick and Langford [68] also turn their attention to the application of the Five-Factor Model of personality and its application to the entrepreneur. They label the Five Factors as shown below (see also [1]):

1. Adjustment (stable/confident . . . nervous/self-doubting).
2. Sociability (warm/optimistic . . . independent/ reserved).
3. Conscientiousness (dependable/responsible . . . impulsive/careless/ disorganised).
4. Agreeableness (team-oriented/trusting . . . self-interested/sceptical).
5. Intellectual Openness (imaginative/curious to practical/unimaginative/ literal-minded).

They cite the work of Brandstatter [69] who found that bus iness founders were more stable, independent and open to new experiences than heirs or managers. They hypothesise that entrepreneurs would score higher on Adjustment and Openness than managers, whilst managers would score higher on Sociability, Conscientiousness and Agreeableness. A survey instrument developed by Howard et al. [70] – referenced in Envick and Langford [68] – was used. No significant difference between entrepreneurs and managers on Adjustment, Sociability and Intellectual Openness scales were found. However, they did find that managers scored significantly higher on Conscientiousness than entrepreneurs, thus suggesting that they are more organised, cautious and plan more than do entrepreneurs. Managers were also found to score higher on Agreeableness, suggesting that they are more team-oriented and considerate than are entrepreneurs.

Recently, there has been a growing interest on the use of MBTI in measure personality trait of entrepreneurs in relation to other concepts [71], [72], [73], [74], [75], [76], [77], [78], [79], [80], but until now none has sound guideline for policy orientation to leverage the supply of sustainable entrepreneurship. This poses a critical problem as stakeholders cannot rely on research findings to guide funding for entrepreneurial development. This could be observed by the co-existence of report on entrepreneurship by international organizations and consulting groups which hardly make reference to scholarly works though many in their number.

2.3 Ways to Improve Data Analysis

2.3.1 Composite Index

In statistics and research design, an index is a composite statistic – a measure of changes in a representative group of individual data points, or in other words, a compound measure that aggregates multiple indicators. Indexes summarize and rank specific observations. Much data in the field of social sciences are represented in various indices such as Gender Gap Index, Human Development Index or the Dow Jones Industrial Average. Very recently, there has been a regain in the use of indexes in economic literature after the publication of Stiglitz's report in September 2009 [81] and, in March 2013, of the first report on "Equitable and Sustainable Well-being" (BES) [82] by the Committee of international development organization and statisticians. While economists and sociologists are taking this big step [83], psychologists still do not see the importance of the tool, although the nature of concepts they manipulate lend much to the use of indexes for interpretation and policy making.

There is no doubt that most socio-economic phenomena cannot be measured by a lone evocative indicator, they are rather represented with multiple dimensions. Just like Personality Trait, phenomena such as development, progress, poverty, social inequality, well-being, quality of life, provision of infrastructures, etc., require, to be measured, by a 'combination' of different dimensions, to be considered together as the proxy of the phenomenon. The tool that best aggregates the various dimensions into conceptual indicators while allowing an appreciation of the contributions of each dimension for policy or decision making is known as composite indices [84],

[85].

A composite indicator is an aggregated index comprising individual indicators and weights that commonly represent the relative importance of each indicator. Composite indicators are increasingly recognized as a useful tool for policy making and public communications in conveying information on countries' performance in fields such as environment, economy, society, or technological development. Composite indicators are much easier to interpret than trying to find a common trend in many separate indicators. They have proven to be useful in ranking regions within a country or countries in benchmarking exercises. However, composite indicators can send misleading or non-robust policy messages if they are poorly constructed or misinterpreted.

Item in indexes are usually weighted equally, unless there are some reasons against it. Constructing the items involves four steps. First, items should be selected based on their face validity, uni-dimensionality, the degree of specificity in which a dimension is to be measured, and their amount of variance. Items should be empirically related to one another, which lead to the second step of examining their multivariate relationships. Third, indexes scores are designed, which involves determining their score ranges and weights for the items. Finally, indexes should be validated, which involves testing whether they can predict indicators related to the measured variable not used in their construction [83]. Therefore, it is considered absolutely essential, in order to obtain valid and reliable results, to support the process of choosing the set of the individual indicators with a theoretical framework that define the social reality in each of its dimensions [86].

Fortunately, trait theory suggests a personality structure and a dynamic inner process, which are reflected in stylistic consistencies in behaviour. There are different theories that attempt to account for personality structure, the latest suggesting five components – neuroticism, extraversion, openness, agreeableness and conscientiousness, e.g. the Myers-Briggs Type Indicator (MBTI) [53]. Measures of structure may be applied to populations such as occupational groups, to assess any statistically significant differences between them. This would suggest a standard personality profile for a group, and provide solid basis for policy formulation.

There are many advantages for using composite indicators: They summarise complex or multi-dimensional issues, in view of supporting decision-makers. They are easier to interpret than trying to find a trend in many separate indicators. They facilitate the task of ranking countries on complex issues in a benchmarking exercise. They assess progress of countries over time on complex issues. They reduce the size of a set of indicators or include more information within the existing size limit. They place issues of countries performance and progress at the centre of the policy arena. They facilitate communication with ordinary citizens and promote accountability.

The Myers-Briggs Type Indicator is a general and widely used scale that enables people to gain self-insight and insight into other people. It comprises four bi-polar scales that are based on Jungian theory of individual differences in perception and judgement, which views subjects as exemplars of 16 possible ideal types (see [1]). Each dimension comprises six facets or sub-scales. Data obtained from a large sample would support composite index analysis. Moreover, this instrument has wide recognition among personality trait scientists for it is constructed on sound theoretical framework. Had the data been from a cohort, the index analysis would reveal trends that could inspire policy makers.

Despite the powerful ability of composite index to handle multi-dimensional concepts, some scientist still hesitate because its use require incorporating weights as the variables may not have the same importance. There is no objective criterion to set the weights to the magnitude of the variable which leads to an amount of subjectivity. To circumvent this problem researchers prefer to level the weights. However, as Personality Trait is concern, Latent Class Analysis can complement index methodology to yield critical results for policy purpose.

2.3.2 Latent Class Analysis or Mixture Method

Latent Class Analysis (LCA) is a statistical method for identifying unmeasured class membership among subjects using categorical and/or continuous observed variables. It can also be viewed as a probabilistic extension of the popular K-Means clustering algorithm for continuous indicators [87]. While K-Means clustering uses Euclidean distance to assign cases to the nearest cluster, Latent Class clustering uses a probabilistic definition of distance which applies not only to continuous but also categorical indicators. Latent class analysis (LCA) is a subset of structural equation modelling, that is why it is also known as latent class model (LCM). It is therefore, used to find groups or subtypes of cases in multivariate categorical data. These subtypes are called "latent classes"

The strengths of latent class analysis abound. It works with a host of different types of data simultaneously without any interference. For example, it can be used to create segments using combinations of categorical, numeric and other more exotic types of data, whereas most programs developed for the other algorithms can only accommodate numeric variables. Besides, latent class algorithms can be modified to incorporate lots of varied phenomena (e.g., predictor variables, complex sampling, response biases), all of which are not readily addressed with the alternative algorithms.

It manages missing data and weights in a sensible way, allocating people into segments based on their available data, whereas the standard implementations of the other algorithms only work with no missing data. Weights do not necessarily influence its results. Theoretically, the model is far more superior. That is, latent class models are built upon many decades of statistical theory. By contrast, the other algorithms are all one-off algorithms which have no strong theoretical support.

Interestingly, personality trait measuring instruments are generally multidimensional with variables of different scale types (discrete or continuous). They are thus suitable for Latent class Analysis. Cross sectional data on large sample survey could be subjected to this treatment to obtain clusters of homogenous respondent and gain insight which could be helpful in lead policy. It would be possible to identify groups of successful entrepreneurs manifesting a dominant trait and excelling in specific economic sector in a given point in space. Geographical comparism could expose area for policy implementation to simulate entrepreneurial development especially in region that has experience recession.

Latent Class algorithm provides for factor analysis (DFactor) considering the diversity of variable scales [87], [88], [89]. DFactor analysis differs from traditional Factor Analysis in several respects: In traditional factor analysis (FA), continuous observed variables are expressed as a linear function of one or more continuous latent factors. The observed variables may be of mixed scale types including nominal, ordinal, and continuous and count. The latent variables are not continuous but discrete, containing two or more ordered categories (levels). The model is not linear. Solutions need not be rotated to be interpretable (the indeterminacy issue of 'rotation' is unique to CFactors in a linear model). While classification in latent Class Clusters are based on individual, classification in DFactor analysis is based on latent variables. This provides for further analysis to unveil nuances for meaningful interpretation.

Currently, there are two experts software for Latent class analysis: Mplus [90] and LatentGold [87]. This software can handle very large data and provide several models. Finite Mixture or Latent regression are used to model nonparametric random-coefficients models for longitudinal data, such growth data, event history data, and panel models (see [91], [92], [93], [94], [95], [96]). This give rise to a suggestion that I deem very important: longitudinal data are virtually ab-sent in entrepreneurial study – though I should acknowledge that it is an expensive venture – this form of data would prove to provide greater insight on the object of study. They allow to assess trait evolution and to compare policy effectiveness. They give meaning to and make it possible for composite index analysis. The study of a cohort of successful entrepreneurs over time in different regions in a country can provide valuable information for policy makers. They also improve our understanding of the phenomenon. Hopefully, the introduction of longitudinal data will attract stakeholders and policy makers toward scholarly writings. The provision of such data will certainly require joint efforts from research institutes and various stakeholders.

3 Potential Venues to Enhance Understanding in Entrpreneurship

3.1 Singlehood

Non-married individuals differ from their married counterparts in daily routines, living arrangements, social and emotional experiences [97], [98]. Singlehood may have pervasive and enduring influence on various aspects of life, including financial resources, social integration, and physical and mental well- being [99], [98], [99], [100], [101], [102]. Being unmarried also violates standards of traditional gender roles. Expectations for marriage devalue "singleness" and generate negative stereotyping of the unmarried [103]. Furthermore, the life transitions that non-married adults go through may be misunderstood, perceived as ambiguous, and perhaps judged critically [99]. Therefore, the lack of normative and institutional support for the experiences of non-married adults may undermine their personal and social identities, "contributing to feelings of guilt and embarrassment, fear of loneliness and psychological weariness" [104]. Yet, though there is ample research on gender analysis in entrepreneurial literature, their main focus is on female entrepreneurial development and "less evidence is available on adjustment to singleness per se" [105]. Of recent, a few studies in Malaysia developed interest on single women entrepreneurs

Ismail et al., [106] undertook to study the dimensions that would help sustain the interest of single mothers into entrepreneurship and later to prove the role of motivation and passions in explaining entrepreneurial success among single mothers. Using cluster sampling technique carried out in six (06) states of Malaysia (representing East, West, North and South of Peninsular Malaysia together with Sabah or Sarawak representing East Malaysia), their results suggested that a motivational role does have significant influence on entrepreneurial passion which is later used to explain entrepreneurial success.

Contrastingly, Salwa et al., [107] embarked on exploring the profile of successful married and single-mother entrepreneurs who have been fruitfully running their business for at least 10 years under the scheme offered by Amanah Ikhtiar Malaysia (AIM). They used an objective (financial) and subjective (non-financial) performance criteria to compare both groups. About 403 respondents which comprise of 202 married and 201 single-mother entrepreneurs made up the sample. Their findings revealed that the performance of married entrepreneurs was better than the opposite group from the perspectives of both objective and subjective. Based on the result, some recommendations were proposed together with some limitations of the study which provide help in charting direction for future research. This study is a strong mono-gender analysis with little interest for single men. In addition, there is no direct indication as to whether their failure is linked to singlehood.

Similarly, Rohayu et al., [108] purported to create an effective model for single mothers to success in entrepreneurship. They were concerned with the fact that, many of the single mothers who are not successful as entrepreneurs rely solely and desperately on government assistance and supports. Based on an ethnographic methodology the authors identified several factors that led to the failure of single women in conducting their business. Among the factors were: lack of training and exposure to entrepreneurship aspects, business categories is the category of informal sectors, the opportunity to get a loan is limited, conflict in working and family, the environment in which women ability as entrepreneurs are always questionable and weak business networking.

Singleness can greatly reduce the likelihood of entrepreneurial development, but evidences are not robust in support for this. More findings are needed because of the prevalence of this category of individual in society and policies targeting specific individual groups are generally resource-effective. This would require adjustments in methodology and data analysis.

3.2 Childlessness

Sociological studies carried on Egyptian, Nigerian, Mozambican and the Gambian communities showed that infertile women are often barred from social events and ceremonies or may even be despised and regarded as inauspicious [109]–[112]. In some cases, they are feared as casting "evil eye" on pregnant women. Recently in Nigeria, Omage, [113] reported that childless women were regarded as worthless and good to be divorced. In most developing countries, the stereotype that infertility is solely considered 'a woman's problem' makes childless women to be generally blamed. Thus, childlessness could have lifelong impact on women and could affect their quality of life negatively likewise their entrepreneurial development.

The psychological consequences of infertility are well documented. Infertile women often feel guilt and worthlessness leading to low self-esteem, depression and anxiety [114]. In terms of the economic impact of childlessness, childless women and their families may feel that they have a lack of social security and support in their old age. At the family and lineage level, childless women receive disrespectful treatment and maltreatment by in-laws due to the concern for their family lineage dying out. In more extreme cases, acts of violence are committed against them [114], [115]. Studies also show that childlessness women have more health complaints, greater anxiety and depression, and complicated grief [116]. Overall, beyond their motivation and passion, women of this category are unlikely to become successful entrepreneurs, though evidences are not robust. Little is known if childless men suffer to the same degree similar prejudice and the consequence to entrepreneurial development.

Regarding the influence of childlessness on social network and support, many works have been published. Though not specified whether or not the childlessness was voluntary or involuntary, the studies showed that childless elderly men and women have smaller social networks [117], [118], are less likely to interact with relatives and more likely to have networks of limited support potential [119] than elderly men and women who are parents. The smaller networks are in part attributable to the lack of children and grandchildren, but there is no evidence that childless individuals have sought to increase social contacts or to extend non-kin networks to compensate for their childlessness [117], [118].

Khan et al., [120] compared couples with children and without children on three variables: life satisfaction; social support and personality traits. With a sample of one twenty participants divided into two groups, sixty couples with children and sixty couples without children, their findings revealed that having children had great impact on life satisfaction and social support of the couples, and that they have the trait of conscientiousness in common. Childless entrepreneur will equally suffer the effects of low social network and support which negatively affects entrepreneurial development.

This result is controversial, literature have proven that successful entrepreneurs must acquire a given level of education in order to effectively and efficiently use management decision making tool. For many in developing countries, this could reasonably be achieved at the prize of singleness and sometimes childlessness. Unfortunately, most lending institutions open to these young entrepreneurs are informal-based – ‘Njangui’ houses; Township Cultural Associations; Village/Tribal Cultural Associations. These institutions provide funds together with an immediate and steady market to accepted/favoured members. Paradoxically, in these informal-based credit institutions, cultural and social values are held high above reason as members are assimilated to fleshly brothers.

Loss of social status, stigma, isolation, alienation and physical violence associated with childlessness have implications for the political, social, and economic emancipation of entrepreneurial talents. Despite the personal cost to the individual as it pertains to psychosocial well-being, childlessness can aggravate the problem of human rights abuse and can lead to socio-economic disempowerment. From evidence in Psychology and Sociology, childlessness could be a major barrier to entrepreneurial emancipation. This phenomenon has received little attention from entrepreneurial scholars, policy makers and programmers in developing countries. Without exception, no entrepreneurial literature has focus on the issue. More findings are needed for robust evidence in order to formulate policies. This also requires specific methodology and data analysis to achieve this aim.

4 Conclusion

As long as nations trade competitively and seek to increase the standard of living of the population generally, entrepreneurship will be part of the government’s agenda. Thus there will be a demand for entrepreneurship, but what of the supply? There are two theoretical perspectives that attempt to answer this question: (a) supply may be manipulated through incentives – making the environment more conducive to entrepreneurship – and people with appropriate human capital will rise to the bait; and (b) the supply is limited to individuals who have the appropriate personality characteristics [1]. In either case policies could be direct to stimulate the supply. Habits and behaviours can be copied. If findings could highlight salient traits that are needed to crop entrepreneurs in a particular community, then policies will be focus toward the development of these traits through education and training. Just a few a born entrepreneurs rather entrepreneurs are also made [121] as evident is the success known in the movie industries in middle and low incone countries. Government, international organization and various stakeholders are interested in developing entrepreneurship; hence scholarly findings should provide sound suggestions through appropriate data analysis and interpretations. Furthermore, there is an urgent need for scholars to acquire panel data on a cohort or repeated measure the meaningful insight on the object of study.

People live out their lives within a social environment, which means, broadly speaking, that their actions and behaviours are interconnected through a socially constructed framework of social norms, rules and responsibilities that are further constrained within economic, political and legal systems of rules and regulation. Studies on personality that take into consideration these factors would provide insight in the evolution of trait through adaptation. This also implies that entrepreneurs in various continents differ in their way of adapting to their environment. To our knowledge, scholarly works on continental trends in entrepreneurship are only available in the pacific – Asian literature - [76]. The limited numbers of literature on African entrepreneurs make it hard to predict trends in their supply, this often lead to a confusion between self-employment and entrepreneurship.

Acknowledgment

The author wish to thank: Pr. KAMDEM David, specialist in Finance; Pr. Tsafack Nanfosso, economist; Pr. Désiré Avom monetarist; and Dr. Nguena Lambert, economic policy and analyst for their valuable contribution. This work was supported in part by a grant from Association of African Young Economist (AAYE).

References

[1] E. Chell, *The Entrepreneurial Personality A Social Construction*, 2nd ed. 270 Madison Avenue, New York NY 10016: Routledge, 2008.

[2] A. Bula, *Performance of women Entrepreneurs in Small Scale Enterprises (SSEs): Marital and Family Characteristics*, vol. 14. 2012.

[3] H. Orwa and A. Bula, "Evolution and Theories of Entrepreneurship : A Critical Review on the Kenyan Perspective," vol. 1, no. 11, pp. 81–96, 2012.

[4] G. D. Bruton, D. Ahlstrom, and K. Obloj, "Entrepreneurship in Emerging Economies: Where Are We Today and Where Should the Research Go in the Future," *Entrep. Theory Pract.*, no. January, pp. 1–14, 2008.

[5] S. Shane, "Who is Publishing the Entrepreneurship Research?," *J. Manage.*, vol. 23, no. 1, pp. 83–95, 1997.

[6] D. B. Audretsch, I. Grilo, and R. A. Thurik, *Handbook of Research on Entrepreneurship Policy*. Cheltenham: Edward Elgar Publishing Ltd, 2007.

[7] E. Chell, J. Haworth, and S. Brearley, *The entrepreneurial personality: Concepts, cases, and categories*. London, New York: Routledge, 1991.

[8] A. C. Cooper and F. J. Gimeno-Gascon, *Entrepreneurs, process of founding, and new-firm performance. In D. L. Sexton & J. D. Kasarda (Eds.). The state of the art of entrepreneurship,*. Boston, 1992.

[9] A. Furnham, *Personality and Productivity*. London: Routledge, 1992.

[10] W. Naudé, "Entrepreneurship and Economic Development : Theory , Evidence and Policy," no. 7507, 2013.

[11] Boutillier and Uzinidis, "Salariale À La Société Entrepreneuriale," *Colloq. « Inégalités pauvreté dans les pays riches », IUFM Auvergne, Chamalières, 20 janvier 2012*, pp. 1–28, 2012.

[12] V. Cottet, "Depuis 30 ans, les grandes entreprises concentrent de plus en plus d'emplois," Paris, 1289, 2010.

[13] E. R. Baldwin and P. Krugman, "Agglomeration, Integration and tax harmonization," *Eur. Econ. Rev.*, vol. 48, no. 1, pp. 1–23, 2004.

[14] D. Audretsch and M. Feldman, "RD Spillover and the Geography of Innovation and Production," *Am. Econ. Rev.*, vol. 86, pp. 630–640, 1996.

[15] P. Veltz, "D'une géographie des coûts à une géographie de l'organisation," *Rev. économique*, vol. 44, no. Juillet, pp. 671–684, 1993.

[16] A. Rallet and A. Torre, "Proximité Géographique ou Proximité Organisationnelle ? Une analyse spatiale des coopérations technologiques dans les réseaux localisés d'innovation," Paris, 2002.

[17] P. A. Julien, *Entrepreneuriat et connaissance. Une théorie du dynamisme régional endogène par les PME : la métaphore des romans policiers*. Québec: Presses Universitaires du Québec, 2004.

[18] P. Claval, "Espace et territoire. Les bifurcations de la science régionale," *Géographie Econ. Société*, vol. 10, no. 2, pp. 157–184, 2008.

[19] G. Benko and A. Lipietz, *La richesse des régions*. Paris: Presses Universitaires de France, 2000.

[20] Z. J. Ács, *Innovation and the Growth of Cities*. New York: E. Elgar, 2002.

[21] J. A. Schumpeter, *The Theory of Economic Development*. Cambridge, MA: Havard University Press, 1934.

[22] M. Casson, *The entrepreneur: An economic theory*. Oxford: Oxford Press, 1982.

[23] J. A. Schumpeter, *Capitalism, Socialism and Democracy*. New York: Harper, 1950.

[24] Z. J. Ács and W. A. Naudé, "Entrepreneurship, Stages of Development, and Industrialization," in *Pathways to Industrialization in the 21st Century*, A. Szirmai, W. A. Naudé, and L. Alcorta, Eds. Oxford: Oxford University Press, 2013.

[25] W. J. Baumol, "Entrepreneurship : Productive , Unproductive , and Destructive," *J. Polit. Econ.*, vol. 98, no. 5, pp. 893–921, 1990.

[26] C. J. Coyne and D. T. Leeson, "The Plight of Underdeveloped Countries," *Cato J.*, vol. 24, no. 3, pp. 235–249, 2004.

[27] I. M. Kirzner, *Competition and Entrepreneurship*. Chicago: Chicago University Press, 1973.

[28] S. Shane and S. Venkataraman, "The promise of entrepreneurship as a field of research," *Acad. Manag. Rev.*, vol. 25, pp. 217–226, 2000.

[29] R. E. Lucas, "On the size distribution of business firms," *Bell J.*, vol. 9, pp. 509–523, 1978.

[30] D. S. Evans and B. Jovanovic, "An estimated model of entrepreneurial choice under liquidity constraints," *J. Polit. Econ.*, vol. 97, no. 4, pp. 808–827, 1989.

[31] K. Murphy, A. Schleifer, and R. Vishny, "The Allocation of Talent: Implications for Growth," *Q. J. Econ.*, vol. 106, no. 2, pp. 503–530, 1991.

[32] M. Herrington and D. Kelley, "African entrepreneurship: Sub-Saharan African G.E.M. Regional Report," Canada, 2012.

[33] P. D. Reynolds *et al.*, "Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998–2003," *Small Bus. Econ.*, vol. 24, pp. 205–231, 2005.

[34] S. M. Kanbur, "Of Risk-Taking and the Personal Distribution of Income," *J. Polit. Econ.*, vol. 87, no. 4, pp. 769–797, 1979.

[35] T. W. Schultz, "Investment in entrepreneurial ability," *Scand. J. Econ.*, vol. 82, pp. 437–448, 1980.

[36] A. E. Burke, F. R. FitzRoy, and N. M. A, "When less is more: distinguishing between entrepreneurial choice and performance," *Oxf. Bull. Econ. Stat.*, vol. 62, pp. 565–587, 2000.

[37] F. Delmar and P. Davidsson, "Where do they come from? Prevalence and characteristics of nascent entrepreneurs," *Entrep. Reg. Dev.*, vol. 12, pp. 1–23, 2000.

[38] M. Minniti, W. D. Bygrave, and E. Autio, *Global Entrepreneurship Monitor*. Babson Park, MA: Babson College, 2005.

[39] H. E. Aldrich and Zimmers, "Entrepreneurship through Social Networks," in *The Art and Science of Entrepreneurship*, D. Sexton and S. Raymond, Eds. 1986, pp. 3–23.

[40] W. Mischel, *Personality and Assessment*. New York: Wiley, 1968.

[41] W. Mischel, "Towards a cognitive social learning reconceptualisation of personality," *Psychol. Rev.*, vol. 80, pp. 252–283, 1973.

[42] E. Chell, "The entrepreneurial personality: a few ghosts laid to rest?," *Int. Small Bus. J.*, vol. 3, pp. 43–54, 1985.

[43] J. W. Carland, F. Hoy, W. R. Boulton, and J. A. C. Carland, "Differentiating entrepreneurs from small business owners: a conceptualization," *Acad. Manag. Rev.*, vol. 9, pp. 354–359, 1984.

[44] W. B. Gartner, "'"Who is an Entrepreneur?" Is the Wrong Question,'" *Entre- Preneursh. Theory Pract.*, vol. 12, pp. 47–68, 1989.

[45] K. G. Shaver and L. R. Scott, "Person, process and choice: The psychology of new venture creation," *Entrep. Theory Pract.*, vol. 16, pp. 23–45, 1991.

[46] D. C. McClelland and D. G. Winter, *Motivating Economic Achievement*. New York: Free Press, 1971.

[47] D. Miron and D. C. McClelland, "The impact of achievement motivation training on small business performance," *Calif. Manage. Rev.*, vol. 21, pp. 13–28, 1979.

[48] D. C. McClelland, "Characteristics of successful entrepreneurs," *J. Creat. Behav.*, vol. 21, pp. 219–233, 1987.

[49] J. B. Rotter, "Generalised expectancies for internal versus external control of reinforcement," *Psychol. Monogr. Whole*, vol. 609, no. 80, pp. 1–28, 1966.

[50] H. Levenson, "Multidimensional locus of control in psychiatric patients," *J. Consult. Clin. Psychol.*, vol. 41, pp. 397–404, 1973.

[51] A. Rauch and M. Frese, "Psychological approaches to entrepreneurial success: A general model and an overview of findings," *Int. Rev. Ind. Organ. Psychol.*, vol. 15, pp. 101–142, 2000.

[52] I. J. Deary and G. Matthews, "Personality traits are alive and well," *Psychologist*, vol. 6, pp. 299–311, 1993.

[53] D. G. Briggs and I. Myers, *Introduction to Types*. Oxford: Oxford Psychologists Press, 1993.

[54] H. J. Eysenck, *The Biological Basis of Personality*. Springfield, IL: Charles C. Thomas, 1967.

[55] H. J. Eysenck, "Personality and experimental psychology: the unification of psychology and the possibility of a paradigm," *J. Pers. Soc. Psychol.*, vol. 73, pp. 1224–1237, 1997.

[56] R. B. Cattell, *Description and Measurement of Personality*. London: George Harrap, 1946.

[57] R. B. Cattell, *Abilities: Their Structure, Growth and Action*. New York: Houghton Mifflin., 1971.

[58] P. Honey and A. Mumford, *Using Your Learning Styles*. Maidenhead: Peter Honey, 1986.

[59] E. Fleishman, "The Leadership Opinion Questionnaire," in *Leader Behavior: Its Description and Measurement*, R. M. Stogdill and A. E. Coons, Eds. Columbus, OH: Ohio State University, Bureau of Business Research, 1957.

[60] M. Belbin, *Management Teams: Why they Succeed or Fail*. London: Heinemann., 1981.

[61] L. Gordon, *Survey of Personal Values (Examiner's Manual)*. Chicago: Science Research Associates., 1984.

[62] J. Guildford, P. Christensen, P. Merrifield, and R. Wilson, *Alternate Uses (Form B, Form C),*. Orange, CA: Sheridan Psychological Services, 1978.

[63] W. L. Gardner and M. J. Martinko, "Using the Myers-Briggs type indicator to study managers: a literature review and research agenda," *J. Manage.*, vol. 22, pp. 45–83, 1996.

[64] J. H. Reynierse, "An MBTI model of entrepreneurism and bureaucracy: the psychological types of business entrepreneurs compared to business managers and executives," *J. Psychol. Type*, vol. 40, pp. 3–19, 1997.

[65] J. W. Carland, J. C. Carland, F. Hoy, and W. R. Boulton, "Distinctions between entrepreneurial and small business ventures," *Int. J. Manag.*, vol. 5, pp. 98–103, 1988.

[66] J. W. Carland, F. Hoy, and J.-A. C. Carland, "'"Who is an Entrepreneur?" is a question worth asking,'" *Am. J. Small Bus.*, vol. 12, pp. 33–39, 1988.

[67] R. Amit, L. Glosten, and E. Muller, "Challenges to theory development in entrepreneurship research," *J. Manag. Stud.*, vol. 30, pp. 815–834, 1993.

[68] B. R. Envick and M. Langford, "The Five-Factor model of personality: assessing entrepreneurs and managers," *Acad. Entrep. J.*, vol. 6, pp. 6–17, 2000.

[69] H. Brandstätter, "Becoming an entrepreneur – a question of personality structure?," *J. Econ. Psychol.*, vol. 18, pp. 157–177, 1997.

[70] P. J. Howard, P. L. Medina, and J. M. Howard, "The Big-Five locator: a quick assessment tool for consultants and trainers," in *The 1996 Annual: Volume 1, Training*, J. W. Pfeiffer, Ed. San Francisco: Jossey-Bass, 1996.

[71] H. M. Ahmad, "Personality Traits among Entrepreneurial and Professional CEOs in SMEs," *Int. J. Bus. Manag.*, vol. 5, no. 9, pp. 203–213, 2010.

[72] J. Amolo and S. O. Migiro, "Entrepreneurship complexity : Salient features of entrepreneurship," vol. 8, no. 19, pp. 832–841, 2014.

[73] C. Best, S. Arora, F. Porter, and M. Doherty, "The Relationship Between Subthreshold Autistic Traits , Ambiguous Figure Perception and Divergent Thinking," *J. Autism Dev. Disord.*, vol. 15, no. 2, pp. 1–10, 2015.

[74] H. Brandstätter, "Personality aspects of entrepreneurship : A look at five meta-analyses," *Personal. Individ. Differ- ences*, vol. 3, no. 2, pp. 1–9, 2010.

[75] S. A. Chermahini, M. Hickendorff, and B. Hommel, "Development and validity of a Dutch version of the Remote Associates Task : An item-response theory approach," *Think. Ski. Creat.*, vol. 7, no. 3, pp. 177–186, 2012.

[76] G. Claire, "Pacific Entrepreneurship Literature Review," Auckland Council, 2016.

[77] C. Mould, "Do Personality Traits Predict Entrepreneurial Intention and Performance?," University of Cape Town, 2013.

[78] J. O. Omotayo and A. A. Anthonia, "Entrepreneur Psychological Traits and Performance: Implications for Nigerian Non- Oil SMES Exporting CompaniesOMPANIES," *Rev. Econ. Bus. Stud.*, vol. 3, no. 6, pp. 211–220, 2010.

[79] S. Marlow and M. McAdam, *Gender and Entrepreneurship*, vol. 19, no. 1. 2013.

[80] F. Leutner, G. Ahmetoglu, R. Akhtar, and T. Chamorro-Premuzic, "The relationship between the entrepreneurial personality and the Big Five personality traits," *Pers. Individ. Dif.*, vol. 63, pp. 58–63, 2014.

[81] J. E. Stiglitz, A. Sen, and J.-P. Fitoussi, "Report by the Commission on the Measurement of Economic Performance and Social Progress," New York, 2009.

[82] BES (Benessere Equo e Sostenibile), "Equitable and Sustainable Well-Being in Italy - Summary," Rome, 2013.

[83] M. Mazziotta and A. Pareto, "Methods for constructing composite indicators: one for all or all for one?," *Riv. Ital. di Econ. Demogr. e Stat.*, vol. LXVII, no. Aprile-Giugno, pp. 67–80, 2013.

[84] J. Salzman, *Methodological Choices Encountered in the Construction of Composite Indices of Economic and Social Well-Being*. Ottawa: Center for the Study of Living Standards, 2003.

[85] M. Mazziotta and A. Pareto, "Nuove misure del benessere: dal quadro teo-rico alla sintesi degli indicatori," *SIS Mag. Riv. on-line della Soc. Ital. di Stat.*, 2011.

[86] F. Delvecchio, *Scale di misura e indicatori sociali*. Bari: Cacuccci, 1995.

[87] J. Magidson and J. K. Vermunt, "Latent class models for clustering: A comparison with K-means," *Can. J. Mark. Res.*, vol. 20, no. 1, pp. 36–43, 2002.

[88] L. Muthén and B. Muthén, *Mplus user's guide.* Los Angeles, CA: Muthén & Muthén.

[89] B. Muthén, *Latent variable mixture modeling. In G. A. Marcoulides & R. E. Schumacher (eds.), New Developments and Techniques in Structural Equation Modeling*. Lawrence Erlbaum Associates, 2001.

[90] B. Muthén and L. Muthén, "Integrating person-centered and variable-centered analysis: growth mixture modeling with latent trajectory classes," *Alcohol. Clin. Exp. Res.*, vol. 24, no. 3, pp. 882–891, 2000.

[91] J. K. Vermunt, *Log-linear Models for Event Histories*, vol. 8. Thousand Oakes: Series QASS: Sage Publications, 1997.

[92] J. . Vermunt, *A general latent class approach for dealing with unobserved heterogeneity in the analysis of event history data. J.A. Hagenaars and A.L. McCutcheon (eds.), Applied Latent Class Analysis*. Cambridge: Cambridge University Press, 2002.

[93] J. K. Vermunt, *Growth models for categorical response variables: standard, latent-class, and hybrid approaches. K. van Montfort, H. Oud, and A. Satorra (eds.). Longitudinal Models in the Behavioral and Related Sciences.* Mahwah, NJ: Erlbaum, 2007.

[94] J. K. Vermunt and V. D. L, "A nonparametric random-coefficients approach: the latent class regression model.," *Multilevel Model. Newsl.*, vol.

13, pp. 6–13, 2002.

[95] M. Wedel, W. A. Kamakura, W. S. DeSarbo, and F. Ter Hofstede, “Im□plications of asymmetry, nonproportionality, and heterogeneity in brand switching from piece-wise exponential mixture hazard models.,” *J. Mark. Res.*, vol. 32, pp. 457–462, 1995.

[96] R. Zackin, V. De Gruttola, and N. Laird, “Nonparametric mixed-effects models for repeated binary data arising on serial dilution assays: An application to estimating viral burden in AIDS,” *J. Am. Stat. Assoc.*, vol. 91, pp. 52–61, 1996.

[97] D. S. Carr and R. Utz, “Late-life Widowhood in the United States: New Directions in Research and Theory,” *Ageing Int.*, vol. 27, pp. 65–88, 2002.

[98] R. C. Kessler and M. Essex, “Marital Status and Depression: The Importance of Coping Resources,” *Soc. Forces*, vol. 61, pp. 484–507, 1982.

[99] P. M. Keith, “The Social Context and Resources of the Unmarried in Old Age,” *Int. J. Aging Hum. Dev.*, vol. 23, pp. 81–96, 1986.

[100] H. Z. Lopata, “Widowhood: Reconstruction of Self-Concept and Identities,” *Stud. Symb. Interact.*, vol. 23, pp. 261–275, 2000.

[101] C. E. Ross, “Reconceptualizing Marital Status as a Continuum of Social Attachment.,” *J. Marriage Fam.*, vol. 57, pp. 129–140, 1995.

[102] R. S. Weiss, *The Study of Loneliness. in Peter J. Stein (ed.), Single Life: Unmarried Adults in Social Context.*, 1st ed. New York: St. Martin’s Press, 1981.

[103] P. J. Stein, *Understanding Single Adulthood. in Peter J. Stein (ed.), Single Life: Unmarried Adults in Social Context*. New York: St. Martin’s Press, 1981.

[104] R. A. Ward, *The Never-Married in Later Life. in Peter J. Stein (ed.), Single Life: Unmarried Adults in Social Context.* New York: St. Martin’s Press, 1981.

[105] P. M. Keith, “Two Models of Singleness: Managing an Atypical Marital Status,” *Int. J. Sociol. Fam.*, vol. 10, pp. 301–310, 1980.

[106] I. Ismail, H. Norhusniyati, A. R. Najihah, H. M. K. Malina, and C. M. Rosfatihah, “Entrepreneurial Success Among Single Mothers: The Role of Motivation and Passion,” in *The Fifth International Conference on Marketing and Retailing (5th INCOMaR) 2015*, 2016, vol. 37, pp. 121–128.

[107] A. H. . Salwa, M. H. . Yahya, A. . Azila, and M. Fidlizan, “The Performance of Married and Single-Mother Entrepreneurs: Evidence from Malaysia,” in *Islamic perspectives relating to business, arts, culture and communication.*, 2015, pp. 419–428.

[108] R. Rohayu, S. S. Noor Sharipah, Y. Yusmarwati, M. Maziana, and A. R. Abdul Rasid, “Poverty Alleviation Among Single Mother In Malaysia: Building Entrepreneurship Capacity,” *Int. J. Bus. Soc. Sci.*, vol. 2, no. 17, pp. 92–99, 2000.

[109] T. Gerrits, “Social and cultural aspects of infertility in Mozambique,” *Patient EducCouns*, vol. 31, no. 1, pp. 39–48, 1997.

[110] M. C. Kabsa, “Threatened fertility in Egypt,” *Soc. Sci. Med.*, vol. 39, no. 4, pp. 487–505, 1994.

[111] F. Okonofua, “Preventing unsafe abortion in Nigeria,” *Afr. J. Reprod. Health*, vol. 1, no. 1, pp. 25–36, 1997.

[112] J. Sundby, “Infertility in the Gambia: traditional and modern health care,” *Patient Educ. Couns.*, vol. 31, no. 1, pp. 29–37, 1997.

[113] M. I. Omage, “Critical Issues in Marriage Failure in Benin City, Nigeria: Signalling the way forward,” *Eur. Sci. J.*, vol. 95, pp. 1857–7881, 2013.

[114] J. O. Omoaregba, B. O. James, A. O. Lawani, O. Morakinyo, and O. S. Olotu, “Psychosocial characteristics of female infertility in a tertiary health institution in Nigeria,” *Ann. Afr. Med.*, vol. 10, no. 1, pp. 19–24, 2011.

[115] B. J. Feyisetan and A. Bankole, “Fertility Transition in Nigeria: Trends and Prospects.,” 2002.

[116] L. Lechner, C. Bolman, and A. Van Dalen, “Definite involuntary childlessness : associations between coping , social support and psychological distress,” vol. 22, no. 1, pp. 288–294, 2007.

[117] P. Dykstra, “Off the beaten track: childlessness and social integration in late life,” *Rev. Ageing*, vol. 28, pp. 749–767, 2006.

[118] P. Dykstra and M. Wagner, “Pathways to childlessness and late-life outcomes.,” *J. Fam. Issues*, vol. 28, pp. 1487–1518, 2007.

[119] P. Dykstra and G. Hagestad, “Childlessness and parenthood in two centuries: different roads different maps?,” *J. Fam. Issues*, vol. 28, pp. 1518–1533, 2007.

[120] H. Khan, HinaMajid, and Qurat-ul-ain, “Comparison of Parents and Childless Couples : Life Satisfaction , Social Support , and Personality Traits.,” *Eur. J. Bus. Soc. Sci.*, vol. 4, no. 8, pp. 91–99, 2015.

[121] B. Flora, “Are Entrepreneurs Born or Made ?,” *Rural Dev. News*, vol. 28, no. 4, pp. 1–8, 2006.