

Assessment of Labour Force Surveys on Patterns and Challenges of Age and Sex Distribution in South Africa Using the Combined Index of United Nations

Germaine Kamleu Ndouma^{1*}, Bingwen Yan², Gabriel Tati³

¹ Department of Mathematics and applied Mathematics, University of the Western Cape, Cape Town, South Africa

² Coordinator of Post-Graduate Studies, Cape Peninsula University of Technology, Cape Town, South Africa

³ Department of Statistics and Population Studies, University of the Western Cape, Cape Town, South Africa

Email Address

germainekam@gmail.com (Germaine Kamleu Ndouma), yanb@cput.ac.za (Bingwen Yan), gtati@uwc.ac.za (Gabriel Tati)

*Correspondence: germainekam@gmail.com

Received: 15 May 2020; **Accepted:** 9 June 2020; **Published:** 16 June 2020

Abstract:

Over the years, a few labour force surveys (LFS) have taken place across South Africa. The data on age and sex from these studies were problematic. Errors have occurred in the data collection process. We re-evaluated the 2007 and 2012 LFS using demographic analysis. The Combined Index of United Nations (CIUN) highlighting the trends and the quality in the reporting on age informs this analysis among ethnic groups by geographical level. Comparisons between the indexes of each instrument were done to measure variations over years (within years). At national level, the increased number of females in the labour force participation seemed to encourage them to be comfortable in the reporting of data on age and sex compared to their male counterparts in both surveys. Females did better reporting on age compared to males and the quality of declaration on age was likely enhanced at national than provincial levels. The geographical scope of the study is national meaning it covers all nine provinces of South Africa. On ethnicity, the female population was more affected by the patterns of preference compared to males in 2007 LFS, with the exception of Africans/Blacks. The improvement in age reporting of males was observed amongst Indian and White population groups. The findings revealed why the government could not address a meaningful policy program. We proposed a fundamental restructuring of education policies, to establish dialogue on the cultural constructions. There is an urgent need for government agencies and NGOs to strengthen training, introduce parent education and community outreach programs.

Keywords:

Labour Force Participation, Labour Sector, Age and Sex; Data Accuracy, Ethnic Groups

1. Introduction

At the lower administrative level, reliable data was the major challenge for provinces in South Africa [1]. The government was worried about the discrepancy of the results of labour force survey (LFS), considering that it is only through credible results that the government can describe the exact demographic situation in the country at a given point in time [2]. Age and sex data were affected by age misreporting and wrong declarations which were not always properly detected by enumerators [3].

The limited information for programs and plans of administrative work due to non-updated size, delays in the application of programs and characteristics of population after five or ten years used to take long. The access and the quality required more attention. The extent of change was engaged to bring such improvements through reliable LFS. Technological instruments had been increasingly introduced to improve the efficiency of data collection operations on the field.

In the same vein, the United Nations (UN) also recommends that, selection of the personnel should be done on the basis of competence knowing that the preparation and processing of work require individuals with skills (cartographers, coders, data entry operators, programmers, drivers, and so on) while the enumerators needed the physical aptitude to reach enumeration areas (EA) and collecting the information according to specific definitions and instructions [4]. More emphasis should be given to develop the ability of personnel to achieve field operations effectively by knowing the workload limits of enumerators and ensuring that EA boundaries are designed so that they easily follow identifiable features such as roads, waterways, established walking tracks and railway or power lines [5].

Age and sex composition are closely related to the provision of social services. For instance, a rapidly growing population is likely to experience problems associated with the need for increased school facilities, employment creations or health facilities. Sex ratios could be calculated by 5-year age groups to observe migration, amongst the working age cohorts in different regions in the country. In addition, the UN recommends that any Survey should include the age and sex as variables so that a comparison of the age distribution for each 5 or 10 year age cohort would be a basic elements [4].

The imbalance in the number of women and men can affect the labour force participation and the sex role in the society. Many errors resulted in the data during data collection and processing; this is due to the lack of registration services in many areas, especially in rural areas of the country, as well as the lack of awareness amongst population about the importance of accurate data and its contribution to planning implementation [6]. He claims that, the labour surveys are badly designed to pick up mining employment. [7] discover that individuals with stable jobs were more likely to start families and become head of households than other individuals without stable jobs. This should increase rather than decrease the probability of these individuals captured in the census or in standard household surveys. When a worker's permit status is illegal in the country, the employer tends to keep him/her informed. However this alone could not explain the large differences between the survey and the population census. In a study done by [6] manufacturing workers were captured in the census but not recorded as being manufacturing workers. [8] demonstrate that some political issues have significant roles on information and these can influence the

response rate. Different cultural background challenges as well as the cultural relevance affected the response rate [9].

The difficulties of the above components might arise during data collection process. Therefore, the South African instruments did not escape the rules for determining the accuracy of age and sex of the population for different demographic components. It is in this context that this study attempts to investigate whether the method applied to assess the accuracy of age and sex in the South African LFS provided reliable data. The study will also compare the method applied to assess the accuracy of age and sex in the South African LFS with indirect methods such as Combined Index of United Nations (CIUN). [10] found that the quality of age and sex data could be assessed by the age-sex accuracy index which is the sum of age ratio score for males, age ratio score for females and three times the sex ratio score. This operation of comparing the indexes is carried out in order to highlight the variations in terms of errors, omissions or duplications. Evaluation is also undertaken, by comparing the survey results amongst gender, at national and provincial levels, per population groups over the years.

2. Methodology

This study used the comparative design based on the reviewing of observation of 2007 and 2012 LFS data obtained from the Statistics of South Africa. While these data were huge with entire sections related only to employment, we consider only the information relevant to the present study. The unit of analysis includes age, sex, ethnic groups and place of residence. In addition, LFS was conducted in all nine provinces of South Africa in order to capture variations observed in the age-sex distribution of the population. The data are re-evaluated using the CIUN method (age-sex accuracy index). Several operations contributed to having age-sex accuracy index. The comparison between results amongst gender, at national and provincial levels, per population groups over years indicates some similarities and differences. It also indicates if there was an improvement observed or deterioration at any stage of the analysis.

Nevertheless, [11] considered some limitations, the permissible values of the age ratio score for males was 2.6. For females it was 2.4, and the permissible value for the sex ratio score was 1.5. The combination of these three values brought the permissible limit for the age-sex accuracy to 9.5 which represented $[(2.6+2.4) + (3* 1.5)]$. Based on the empirical analysis of the age and sex data from population census in different developed and developing countries, the United Nations recommends that the age and sex structure of a population might be classified as accurate if the age-sex accuracy index is under 20, inaccurate if the index is between 20 and 40, and highly inaccurate if the index is above 40 [5].

3. Results

3.1. CIUN for LFS at National Level

Table 1 presents the variation in age specific index for both male and female. Concerning LFS 2007 at the national level, the age specific indicator for males is 6.86 and for females is 3.90 and the indicator of variation of sex ratio is 5.43. The quality of 5-years age and sex distribution was probably inaccurate. The age reporting on female respondents was more accurate compared to male respondents. The mean

difference in sex ratios is showing the decreased population of males in the reporting of their age. The results are discussed based on the CIUN. However, the CIUN is developed based on the assumption that normal age and sex structures which meant the sex ratio gradually decreases from one age group to another and, at the highest age group, the value of this index ranged from 95 to 100. Population size corresponding to 5-year age groups decreased as age increased [12]. According to the LFS 2007, the CIUN is 27.05 (Table 2) revealing also the quality of responses on age reporting is probably inaccurate.

Table 1. Variation of age specific index per gender and index of variation in sex ratios at national and provincial level for LFS (2007-2012).

Provinces	LFS 2007			LFS 2012		
	D _m	D _f	F	D _m	D _f	F
Western Cape	4.75	10.09	8.84	2.78	4.52	5.71
Eastern Cape	10.52	7.06	8.71	6.85	4.34	8.92
Northern Cape	10.59	9.04	12.55	8.23	4.39	8.18
Free State	6.29	8.07	7.98	8.99	7.65	4.40
KwaZulu-Natal	10.00	6.13	7.97	5.24	6.58	7.19
North West	9.90	8.24	13.38	6.39	3.75	7.86
Gauteng	5.29	4.38	5.98	3.06	3.54	5.76
Mpumalanga	13.39	11.81	10.98	10.28	3.66	11.57
Limpopo	12.19	7.39	9.72	8.27	3.59	6.84
National	6.86	3.90	5.43	1.63	0.84	5.83

Considering LFS 2012, as presenting in Table 2, the CIUN is 19.95. The quality of sex and 5 year age group distribution of LFS 2012 is likely relatively accurate based on the standard of United Nations (19.95 is less than 20); hence it is very close to the upper limit 20. The age specific for males (1.63) is higher than that for females (0.84) showing that the age reporting is probably better for females compared to males. The mean difference in sex ratios is 5.83 revealing some misreporting in the declaration of ages.

Looking at both results, LFS 2012 is probably better compared to LFS 2007. Instead of a decrease in the index ratio, the mean difference of sex ratios increased slightly in 2012. This is an abnormal variation in the sex ratio indicators affects the quality of age and sex distribution of LFS 2012 and consequently, the quality of age sex reporting was improved, the CIUN index decreases from 27.05 to 19.95. The male index of age has decreased consistently from 6.86 to 1.63 while the female index of age has also decreased from 3.9 to 0.84. The sex ratio has not followed the same trend as male index of age increased more than female index. This could be explained by the attitude of male respondents who tended to overestimate their ages which brought them to shift in older ages and also the females respondents who tended to underestimate their ages which pushed them to shift in younger ages.

3.2. Provincial Index Rating

As far as the LFS 2007 is concerned, the CIUN in provinces are possibly not accurate. Only Free State and Gauteng provinces recorded index ranges between 20 and 40 which means that the quality of sex and 5-year age group distribution are probably inaccurate based on the UN standards. Thus, Western Cape, Eastern Cape, Northern Cape, KwaZulu-Natal, North West, Mpumalanga and Limpopo provinces

report a CIUN of above 40 showing that the quality of age and sex distribution are likely very inaccurate. Despite the fact that all indexes are probably inaccurate at provincial levels, Gauteng indicates at least 27.60 which is less than 30 but greater than 20. However, this index is likely greater than 27.05, which is reported at the national level. Table 1 shows that in Western Cape and Free State, female respondents registered higher average age ratio deviation than male respondents implying that the age reporting is probably much better for males compared to females. Indeed, Eastern Cape, Northern Cape, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo registered the inverse, where females had lower average age ratio deviation than males. This indicates that age reporting is worse for males than females. The highest index of CIUN is 58.30 (North west) and the lowest is 27.60 (Gauteng).

Based on the LFS 2012 in Table 2, CIUN index rating in the provinces are not probably of good quality in general. Western Cape, Northern Cape, Eastern Cape, Free State, KwaZulu-Natal, North West, Gauteng and Limpopo record a CIUN range between 20 and 40 indicating that the quality of data on age and sex is likely poor which meant the quality of age distribution is possibly inaccurate amongst these provinces. For instance, the CIUN results of the Mpumalanga is above 40 showing that the quality of sex and 5 year age group distribution is likely very inaccurate. According to Table 1 above, females in the Western Cape, KwaZulu-Natal and Gauteng provinces have higher average age ratio deviation than males which means that the age reporting is better for males compared to females in these provinces.

Table 2. *CIUN for LFS (2007-2012) at national and provincial levels.*

Provinces	LFS 2007	LFS 2012
Western Cape	41.34	24.45
Eastern Cape	43.72	37.93
Northern Cape	57.30	37.15
Free State	38.31	29.82
KwaZulu-Natal	40.04	33.39
North West	58.28	33.72
Gauteng	27.60	23.87
Mpumalanga	58.14	48.65
Limpopo	48.73	32.38
National	27.05	19.95

Looking at the results, Eastern Cape, Northern Cape, Free State, North West, Mpumalanga and Limpopo presented males with higher average age ratio deviation than females. This implies that, age reporting was better for females than for males in these provinces. The highest index of CIUN is 48.65 (Mpumalanga) and the lowest was 23.87 (Gauteng) which is even higher than 19.95 at the national level.

The CIUN of these instruments at the provincial level were probably not accurate because they are above 20. The quality was likely poor over the provinces. However, the index value for Western Cape, Eastern Cape, North West and Limpopo decrease respectively from 41.34; 43.72; 58.28 and 48.73 to 24.45; 37.93; 33.72 and 32.38 in the value of its indexes that could not even affect any change in the trend. According to the CIUN index rating, the Western Cape, Eastern Cape, Northern Cape, KwaZulu-Natal, North West and Limpopo decreased implying that the quality of 5-years age and sex distribution has probably improved but remained inaccurate compared to CIUN obtained at the national level.

The CIUN of these instruments at the provincial level were probably not accurate because they are above 20. The quality was likely poor over the provinces. However, the index value for Western Cape, Eastern Cape, North West and Limpopo decrease respectively from 41.34; 43.72; 58.28 and 48.73 to 24.45; 37.93; 33.72 and 32.38 in the value of its indexes that could not even affect any change in the trend. According to the CIUN index rating, the Western Cape, Eastern Cape, Northern Cape, KwaZulu-Natal, North West and Limpopo decreased implying that the quality of 5-years age and sex distribution has probably improved but remained inaccurate compared to CIUN obtained at the national level.

3.3. Ethnic Group Findings

A further observation of the results of LFS 2007 shows that, Africans/Blacks population group present outcomes ranging between 20 and 40 showing that the quality of sex and 5-year age group is likely to be inaccurate. Some distortions however occur in its structure. For example, the Coloureds subgroup, Indians/Asians and Whites record indexes ranging above 40 indicating that the quality of responses on declaration of age and sex are probably very inaccurate. Their population structure by sex and five-year age groups is considered very incorrect. The highest value of the CIUN is 69.83 (Indians/Asians) while the lowest is 30.00 that is even greater than the national index (Table 4). As Table 3 indicates, the female respondents of Coloureds, Indians/Asians and Whites ethnic groups' recorded higher index of age ratio deviation than male respondents showing that mean age reporting of male respondents probably is better compared to female respondents. It is important to note that a substantial deviation is highlighted in terms of age misreporting. The African/Black males show different results; they scored more in deviation of age than females implying the age reporting is better for females than African/Black males.

As far as LFS 2012 is concerned, Table 4 shows Africans/Blacks index is 17.60 indicating the quality of sex and 5-year age group distribution is probably accurate. The mean age index for males is 3.27 higher compared to female (1.37). The CIUN of Coloured has decreased and still inaccurate because it lies between 20 and 40 indicating that the quality of sex and 5-year age group distribution is probably considered incorrect compared to national index.

Table 3. Variation of age specific index per gender and index of variation in sex ratios among ethnic groups for LFS 2007 and LFS 2012.

Population groups	LFS 2007			LFS 2012		
	D _m	D _f	F	D _m	D _f	F
Africans/Blacks	8.03	4.28	5.89	3.27	1.37	4.32
Coloureds	5.91	11.18	9.60	6.44	5.34	4.48
Indians/Asians	9.33	13.64	15.62	9.31	6.57	13.76
Whites	7.49	8.97	14.49	6.55	5.00	10.25
National	6.86	3.90	5.43	1.63	0.84	5.83

In the same vein, the indexes for Indians and Whites are above 40 showing the quality of responses on age and sex data remained possibly very inaccurate compared to national index. The highest index is 57.16 (Indians/Asians) followed by 42.32 (Whites) and the lowest is 17.60 (Africans/Blacks) which is lower than the national index. Table 3 further indicates that the females in general have lower average age ratio deviation than males showing that the quality of age reporting is possibly better

for females than for males. The males of Coloureds' have increased average age ratio deviation compared to all the mean age ratio deviation observed in other population groups. This finding implies that the quality of age reporting is deteriorated for males.

Table 4. *CIUN for LFS (2007-2012) per ethnic groups.*

Population groups	LFS 2007	LFS 2012
Africans/Blacks	30.00	17.60
Coloureds	45.90	25.23
Indians/Asians	69.83	57.16
Whites	59.92	42.32
National	27.05	19.95

3.4. Cross-Ethnic Variations LFS 2007 and LFS 2012

Both LFS record a decrease in the index for all population groups. The decrease index for the Africans/Blacks affected its trend and changed the interval it belongs. This also shows that, the quality of responses on declaration on age and sex is likely accurate. The index for the Coloureds shifted in other interval and lies between 20 and 40 indicating the situation is probably inaccurate, the preference was probably less pronounced; the quality of its sex and 5-year age group distribution is possibly remained incorrect. The index of Indians/Asians and Whites decreased but did not produce any change.

4. Discussions of Results

4.1. National Level

An attempt is made to evaluate the CIUN in both LFS at national level. The results reveal that, the quality of data on age improved over the years confirms the research question that the quality of data on age is modified over the years. The decrease of CIUN observed in LFS 2012 (Table 1) is a direct consequence of great decrease of age specific indicator for males and the decline of age specific indicator for females. The deterioration in females' index affects the variation of sex ratios which increased automatically. The variation of these factors combined with migration has serious implication on the policy of the country [13]. For instance, the improvement of health has to consider all related aspects (health and facility services). The transfer of females from older ages to younger ages and for males from younger ages to older ages could create these distortions. The feature of out-migration into neighbouring countries might be another possible reason for this deterioration of the mean difference of sex ratios [14]. These young migrants are seeking for better opportunities. This could also be as a result of the training, the instructions and awareness addressed to the enumerators which were efficient [15]. Therefore, government needs to take actions in order to improve the labour sector and apply more effective methods to create new opportunities within efficient environment [16]. This could discourage workers who are still in need of new challenges.

4.2. Evaluation per Province

For CIUN, the results at provincial level reveal attempts to confirm the hypothesis that, the quality of data on age and sex was poorer at provincial compared to national level in both LFS. The decrease (improvement) of CIUN is observed in all provinces. However, six out of nine provinces have changed category including Western Cape, Eastern Cape, Northern Cape, KwaZulu-Natal, North West and Limpopo. The quality

of their sex and 5-year age distribution which was initially worse had become somewhat inaccurate. The improvement of Free State, Gauteng and Eastern Cape is not visible because the CIUN remains in the same category. Nevertheless, the CIUN of KwaZulu-Natal has decreased slightly, changed the range despite the fact that the quality of its distribution is not accurate. There respondents still have to improve the quality of their responses on age.

The CUIN index in Mpumalanga province has decreased but remains in the same range, indicating that the quality of data on age is highly inaccurate. The patterns of preference are more significant amongst males than females in both surveys. However, the LFS 2012 is more likely accessible to respondents than LFS 2007 where the age reporting is possibly greater in LFS 2007 compared to 2012 implying the distortion in the age and sex distribution. The improvement of indexes is observed amongst females than males and in provinces with dominant White population group (Western Cape), Indians (KwaZulu-Natal) and amongst Africans/Blacks in rural areas (Mpumalanga, Limpopo, North West and Northern Cape). A possible reason for this is that, males tend to be more open minded than females but over the years the inverse is observed. Females became more open while males tended to be more reserved [17]. Although both sexes still need to be encouraged in terms of responses on age. NGOs and the government need to emphasize campaign operation or, increase information procedures to better explain the importance of those surveys in such a way that one could be able to measure the effect of wrong declaration of information on policies at provincial level. [18] have observed that respondents should be aware that they must be involved if they expect future improvement in employment conditions in environment of Labour force in the country through their region.

4.3. Cross-Ethnic Group Variations

Both LFS and CIUN are used to evaluate the extent to which the declaration on age was considered amongst Africans/Blacks, Coloureds, Indians and Whites in relation to gender. The results of the analysis per population groups confirm the study research question: “How do ethnic differences affect the quality of declaration on age?” The purpose of this question is to determine the influence of ethnicity on the quality of declaration on age using the LFS. The results reported in 2012 reveal the presence of regularity of age’s data declared by African/Blacks indicating the quality of declaration is highly accurate. These results also indicate a decrease of the values of this index showing that there is a great improvement realized amongst African/Black population groups, hence change was observed in the attitudes as far as the patterns of regularity are concerned. The CIUN of Whites’ and Indian/Asian population groups decrease despite the fact that they remain in the same category showing the quality is highly inaccurate. Only the index of Coloureds had decreased and provokes a shift of its index in another range despite the fact that the quality of declaration on age and sex is not accurate. As a consequence, the quality of sex and 5-year age distribution remained highly inaccurate as well.

In general, the female population for all the ethnic groups is more affected by the patterns of preference compared to males in LFS 2007 except for Africans/Blacks.

Regarding the pattern of preference, the age reporting of males is improved amongst African/Blacks and Whites. However, the age reporting is likely more accessible amongst females in LFS 2012 than males; while in LFS 2007, the age reporting is more accessible amongst males than females. When comparing the

differences between indexes using both surveys, it reveals that the LFS 2007 is probably more reliable compared to LFS 2012 (For 2012: 25-18 = 7, 42-25 = 17, 57-42 = 15; for LFS 2007: 46-30 = 16, 60-46 = 14, 70-60 = 10). In fact, 16, 14 and 10 are closer compared to 7, 17 and 15. A possible reason for this preference could be linked to the lack of education amongst female population or, the non-consideration of female in the Indian society or inequality observed also in African/Blacks population group continue to affect CIUN [19,20]. Another possible reason can be attributed to the uncertainty of the political situation in the country and the backlash if the black government is ushered in; this concerned especially the White population group [21]. Subsequently, other factors such as increase in insecurity, crime become important. Eventually, the gender of enumerators could influence the response of female Indians with regard to their cultural backgrounds [22]. If more males are assigned to collect data, females tended in general to refuse giving adequate responses due to cultural reasons.

5. Conclusion

Based on the findings of this study, LFS outcomes should be made to present the implication of discrepancies in reporting on age and sex by respondents. At national level, the age reporting has probably deteriorated over the years. The greater improvement on the male's declaration of age compared to females enables the mean difference of sex ratios to increase; consequently, the CIUN decreased. However, LFS 2012 is more accessible compared to LFS 2007.

The results of CIUN at provincial level show that the patterns of preference greater amongst males than females in both surveys. Obviously, the attitudes of respondents changed over the years. The involvement of females in labour force participation becomes a stimulus for them to express their opinion and feel more relaxed or comfortable while males tend to be more reserved. This confirms the results recorded by [23]. There is a need to encourage both sexes to improve the quality of their reporting on age. Exploring LFS, CIUN used to evaluate the quality of declaration on age amongst population groups in South Africa revealed that the female population is more pronounced in their preference compared to males in LFS 2007 except for Africans/Blacks. The age reporting was likely greater among females in LFS 2012 than males while the reverse was observed in LFS 2007.

The study shows that the lack of education, non-consideration of female in the Indian society and in province with predominance of rural areas, inequality observed in Africans/Blacks amongst gender are contributing factors which account for the inaccuracy of data quality according to both LFS in South Africa. Therefore, the government should have to consider all these observations when preparing future data collection operations in order to improve the quality of its data on age and sex as well. Thus, the government has to invest in education at all levels and social requirements for achieving good results for national development.

The recurrent cultural background in the Indian population group needed to be further analysed. There is therefore a need for government agencies and NGOs to strengthen teacher training, introduce parent education and community outreach programs. It is also important to establish dialogue on the cultural values that shapes gender norms in the community. Many prevailing society norms negatively affected Indians access to modern knowledge information.

The uncertainty of the political situation which affected the attitudes of Whites serves as impediment to the CIUN. Consequently, increased insecurity and crime became significant in the country. In order to reduce the phenomenon of brain drain which was observed by the massive emigration of Whites especially of working age, the government has to ensure safety and security of its people. And also the high immigration of Indians in the country needed a good attention on the regulation purpose according to the main line of policies.

Particularly, for immigrants with high or scarce skills, the government has to devise means of accommodating them in order to promote informal education amongst South African citizens who did not have opportunity to attend higher education.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Acknowledgments

The authors would like to thank Statistics South Africa for providing data sets and offer special thanks to Dr Isabel Schmidt, Statistics South Africa, for her valuable suggestions and comments.

References

- [1] Rogerson, C.M. Consolidating local economic development in post-apartheid South Africa. *Urban Forum*, 2008, 19(3), 307-328, DOI: 10.1007/s12132-008-9035-8 .
- [2] Statistics, SA. Guide to Quarterly Labour Force Survey. 2008, Report No 02-11-01. Available online: <http://www.statssa.gov.za/qlfs/docs/Quarterly-Labour-Force-Survey-Guide.pdf> (accessed on 10 August 2015).
- [3] Statistics, SA. South African Statistical Quality Assessment Framework (SASQAF), Operational Standards and Guidelines. 1st ed. Statistics South Africa: Pretoria, South Africa, 2010; pp. 1-87; ISBN 978-0-621-39104-6.
- [4] United Nations, Department of Economic and Social Affairs, Statistics Division (DESA/UNSD). Designing Household Survey Samples: Practical Guidelines. United Nations, (DESA/UNSD): New York, USA; 2008; pp 1-240; ISBN 978-92-1-161495-4.
Available online: http://unstats.un.org/unsd/demographic/sources/surveys/Series_F98en.pdf (accessed on August 10, 2015).
- [5] United Nations Economic and Social Council & United Nations. Economic Commission for Africa, Report of the regional working group on recommendations for the 2000 round of population and housing censuses in Africa. 1996. Conference: Regional Working Group on Recommendations for the 2000 Round of Population and Housing Censuses in Africa 1996, Jan. 22-26: Addis Ababa, Ethiopia. Available online: <http://hdl.handle.net/10855/7175> (accessed 5 June 2015).

- [6] Wittenberg, M. Analysis of employment, real wage, and productivity trends in South Africa since 1994. *Conditions of Work and Employment*, 2014, Series 45, International Labour Office: Geneva, Switzerland; pp. 1-82.
- [7] Budlender, D.; Lund, F. South Africa: A legacy of family disruption. *Development and Change*, 2011, 42(4), 925-946, DOI: 10.1111/j.1467-7660.2011.01715.x.
- [8] McCarty, C.; Killworth, P.D.; Rennell, J. Impact of methods for reducing respondent burden on personal network structural measures. *Social Networks*, 2007, 29(2), 300-315. DOI: 10.1016/j.socnet.2006.12.005
- [9] Graham, J.; Lewis, J.; Nicolaas, G. Ethical relations: A review of literature on empirical studies of ethical requirements and research participation. ESRC Research Methods Programme. 2006. Working Paper No 30, Manchester: Economic & Social Research Council.
- [10] Shryock, H.S.; Siegel, J.S. *Methods and Materials in Demography*, condensed edition; Academic Press: New York, USA; 1976; pp. 1-835; ISBN-13: 978-0126411508 ISBN-10: 0126411506.
- [11] Knodel, J.; Chayovan, N. Gender and ageing in Thailand: a situation analysis of older women and men. Research Reports No 08-664. Institute for social research. The University of Michigan press Ann Arbor: Population Studies Center, USA; 2008; pp. 1-36.
- [12] Hogan, M.C.; Foreman, K.J.; Naghavi, M.; Ahn, S.Y.; Wang, M.; Makela, S.M.; Lopez, A.D.; Lozano, R.; Murray, C.J. Maternal mortality for 181 countries, 1980–2008: A systematic analysis of progress towards Millennium Development Goal 5. *The Lancet*, 2010, 375(9726), 1609-1623, DOI: 10.1016/S0140-6736(10)60518-1.
- [13] Wilson, W.J. *The truly disadvantaged: The inner city, the underclass, and public policy*. University of Chicago Press, 2012. USA. DOI: 10.7208/chicago/9780226924656.001.0001.
- [14] Park, K. People's exit in North Korea: New threat to regime stability? *Pacific Focus*, 2010, 25(2), 257-275, DOI: 10.1111/j.1976-5118.2010.01046
- [15] United Nations Statistical Division, and National Household Survey Capability Programme. *Household Sample Surveys in Developing and Transition Countries*. United Nations Publications, New York. 2005.
- [16] Porter, M.E.; Kramer, M.R. Creating shared value. *Harvard Business Review*, 2011, 89(1/2), 62-77.
- [17] Pienaar, J.S. Perceptions of affirmative action and the potential unintended consequences thereof in the work environment: a study of the designated and non-designated groups in South Africa. SUNScholar Research Repository, 2009, Unpublished master's thesis. Stellenbosch University.
- [18] Kingdon, G.; Knight, J. Unemployment in South Africa, 1995–2003: causes, problems and policies. *Journal of African Economies*, 2007, 16(5), 813-848, DOI: 10.1093/jae/ejm016.

- [19] Lu, Y. Sibship size and education in South Africa: Black–White variations. *Research in Social Stratification and Mobility*, 2009, 27(2), 110-125, DOI: 10.1016/j.rssm.2009.04.002
- [20] Sibanda, A. Ethnic Differences in the Living Arrangements of Children in South Africa. *Journal of Comparative Family Studies*, 2011, 42 (4), 479–508., DOI: 10.3138/jcfs.42.4.479
- [21] Featherman, D.L.; Krislov, M.; Hall, M. The next twenty-five years: affirmative action in higher education in the United States and South Africa. The University of Michigan press Ann Arbor, USA, 2010; pp. 418; ISBN 10: 0472033778 / ISBN 13: 9780472033775.
Available online: <https://muse.jhu.edu/book/6415> (accessed 5 June 2015).
- [22] Zagefka, H.; Brown, R. Comparisons and perceived deprivation in ethnic minority settings. *Personality and Social Psychology Bulletin*, 2005, 31(4), 467-482, DOI: 10.1177/0146167204271711
- [23] Wood, P.; Landry, C. The intercultural city. Planning for Diversity Advantage. Earthscan: London, 2008; pp. 254-261; ISBN 978-1-84407-4. DOI: 10.1111/j.1468-2427.2008.00828_5.x.



© 2020 by the author(s); licensee International Technology and Science Publications (ITS), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (<http://creativecommons.org/licenses/by/4.0/>)