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RELATIONSHIP BETWEEN SOCIO-ECONOMIC CHARACTERISTICS AND INDEBTEDNESS OF FORMAL SECTOR EMPLOYEES IN KENYA

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Abstract

This study sought to establish the relationship between Social economic characteristics and indebtedness of formal sector employees in Kenya. The target population comprised of 2.4 million employees in Kenya. Stratified random sampling was used to administer questionnaires to 1000 respondents. Desscriptive statistics and ANOVA was used to analyse the data. The study established that respondents over 46 years of age were more indebted than those below 40 years of age. The study also found out that residents living in urban areas are less indebted than those living in the rural areas. The study concluded that the magnitude of loan repayment and loan outstanding balance has a direct bearing on the indebtedness of employees in the formal sector.

Key words: *Indebtedness, Formal Sector, Socio-economic characteristics*

Introduction

According to finance theories, rational individuals have to make decisions on how to save, invest and borrow (Cynamon & Fazzari, 2008; Mian & Sufi, 2010a; Mian Sufi, 2010b). Borrowing decisions, especially are very important for agregate consumption, assets demand and financial stability. The problem is when borrowing levels are beyond the borrowers means (Georgarakos, Lojschova & Ward-Warmedinger, 2010; Liv, 2013). Researchers have documented myriad of negative consequences for over-indebtnesss (Albrecht, Albrecht & Albrecht, 2004; Dew, 2008; Idowu, 2009; Kim, Sorhaindo & Garman, 2006). Examples of negative consequences at personal level are stress, poor social relationship, absenteeism, mental disorder, health disorder, homelessness, divorse and even suicide. On the other hand, overindebtedness can create agregate economic and financial fragility (Djoudad, 2011;

OECD, 2014). For example the 2007 and 2008 global financial crisis was as a result personal over-indebtedness.

Indebtedness has been measured in many ways by prior researchers. For instance (Liv, (2013) has used Debt service ratio (DSR) while Herceg & Sosic (2010) has used Debt income ratio (DIR). DSR refers to the propotion of monthly debt repayment to the gross income of the individual (Liv, 2013). DIR is the proportion of loan outstanding balance to the gross income of the individual (Herceg & Sosic, 2010). In this study the short term indebtedness indicator (DSR) and the long-tern indicator (DIR) are multiplied to yield the agreggate score for Indebtedness (ID).

At the global level, access to debts is no longer the problem;the problem of how to use debt. This can be attributed to financialisation- the increase importance of financial market, role, actors (Gloukoviezoff, 2007). This also coupled with financial innovation and liberalization, and reduced collaterral requirement (Dey, Djoudad, & Terajima, 2008). Worldwide the trends of indebtedness appears to be worrying with majority of countries above the OECD average DIR. For example the ratio of household debt to disposable income for 2012 was 311.5 percent for Netherland (the highest), Ireland at 230.4 percent, Sweden at 172%, Korea at 163.8% Luxembourg at 153%, United Kingdom at 151.5%, Finland at 122.9 %, USA at 114.9 percent and France at 104% , well above the OECD average of 135% (Jones & Kim, 2014; OCED, 2014).

In Kenya, private borrowing has doubled in the period between 2010 and 2014 while public debt has increased by about 31%. The average DIR increased from 57% to 74% over the same period (KNBS, 2015). Personal debts continue to be sourced both formal and informal institutions. Formal institutions include commercial banks and Savings and Credit Cooperatives (SACCOs). Others formal sources are mortgage hire purchase, credit cards and insurance companies. Informal institutions included the Rotating Savings and Credit Associations and the unregistered money lenders popularly referred to as shylocks (Munyoki & Okech, 2012).

Problem Statement

Borrowing decisions are key to financial wellness of individuals (Keown, 2010). Much of the developed world is apparently over-indebted when the OECD DIR statistics are used. This trend, if not stop will spill over to the emerging economics and ultimately to the developing countries like Kenya. This is already happening, albeit at a slow speed. In Kenya, a growth of

17 % between 2010 and 2014 is evidently clear. There is a lot of effort to control levels of public debt but little effort, if any, is put to control personal debt levels in Kenya. This is unlike countries like France, UK, US and South Africa which have elaborate efforts to stem the problem of over-indebtedness. Therefore, the problem of indebtedness is so dire that France (Coustin, 2012), South Africa (Paile, 2013) and US (Scott, 2007; Macgee, 2012) have legislated legal mechanism to tackle over-indebtedness. UK has created a task force (Ironfield-Smith, Keasey, Summers, Duxbury & Hudson, 2005) and Commission (Meadowcroft, 2006) to tackle over-indebtedness.

Objective

To establish the relationship between Social economic characteristics and indebtedness of formal sector employees in Kenya.

Hypothesis

There is no the relationship between Social economic characteristics and indebtedness of formal sector employee in Kenya.

Methodology

The objective of this study was to examine the relationship between social economic characteristics and indebtedness of formal sector employees in Kenya. The target populations comprised of 2.4 million employees in the formal sectors (KNBS, 2015). To achieve the study's objectives primary data was collected by using of a self-administered questionnaire containing closed ended questions. The questionnaire was piloted using forty working Master of Business Administration (MBA) students from the University of Nairobi in March, 2016. The target population was first stratified into the eight historical provinces. Formal sector employees in three provinces were finally randomly sampled. 1000 questionnaires were finally administered to formal sector employees using stratified random Sampling. 648 questionnaires were returned, of which 581 were usable. Data preparation involved coding the raw data. Finally, the data was analyzed by SPSS version 21; Descriptive analysis and ANOVA was used.

Results

Data usually have large outliers, especially when the variables are expressed in the form of ratios. Outliers for the dependent variable were not deleted; this was to avoid censored regression bias. Age, family size, level of education, work experience, distance to county offices and level of income were aggregated to fewer groups.

Table 1: Summary statistics used to compute indebtedness

One sample T- test	T	Sig.	95% Confidence Interval		
N			Mean	Lower	Upper
Total income 569	31.175	0.000	75,681.40	70,913.16	80,449.64
Repayment 527	22.152	0.000	23,321.53	21,253.31	25,389.76
Loan balance 505	19.223	0.000	611,148.77	548,687.20	673,610.34
DSR 527	41.825	0.000	0.3075	0.2931	0.3219
DIR 506	28.402	0.000	8.2533	7.6824	8.8242
ID 504	18.333	0.000	3.2549	2.9069	3.6048

Generally, the optimal DSR should be less than or equal to 0.3 (Liv, 2013) while DIR should range between 4.5 to 6.0 (Herceg & Sosic, 2010). Since ID is a multiple of DSR and DIR it ought to ranges between 1.35 and 1.8. Table 1 shows the mean monthly total income, loan repayment and outstanding balance in Kenya Shillings together with average indebtedness indicators. Review of the data on indebtedness and its indicator, it is found that 51.7% of the respondents had DSR of less than 0.3, 36.1% had DIR of less than 4.5 while 43.9 % had ID of less than 1.35. Therefore using the mean DIR and ID, it can be clearly concluded that majority of the respondents were over-indebted. Using long-term indebtedness indicator - DIR, it can be concluded that it will take over eight years to deleverage the respondents in this study. This is in support of Yoo and Hwang (2013) who estimated it would take more than 10 years to deleverage households in Korea. They also found that although household leverage was increasing, the number of borrowers remained the same; meaning only a section of the Korean are affected by the problem of over-indebtedness.

Table 2: Report of respondents' indebtedness

	DSR	DIR	ID
Mean	0.3075	8.2533	3.2549
Median	0.2857	6.4286	1.9525
Mode	0.25	5.00	.70[a]
Standard Deviation	0.16861	6.53670	3.98214
Skewness	0.687	1.472	2.345
Kurtosis	0.247	2.752	6.490

[a]. Multiple modes exist. The smallest value is shown

Reviewing the mean indebtedness in Table 2 show that respondents are over-indebted by whatever indebtedness indicator is used. The skewness of a normal distribution is zero. Negative skewness implies a long left tail, and positive skewness means a long right tail. Kurtosis of a normal distribution is is three. If it exceeds three, the distribution is peaked (leptokurtic) relative to the normal. If the kurtosis is less than 3, then the distribution is flat (platkurtic) relative to the normal (Santos & Margarida, 2013). It follows that ID and its

dimension are not normally distributed; it has a long right tail and it is flat. Figures 1 to 3 confirms the same.

Testing of Normality of the distribution of indebtedness

Data can follow either a normal distribution or not. Many parametric tests require normally distributed variables. Figure 1 to 3 shows the distribution of indebtedness and its dimensions.

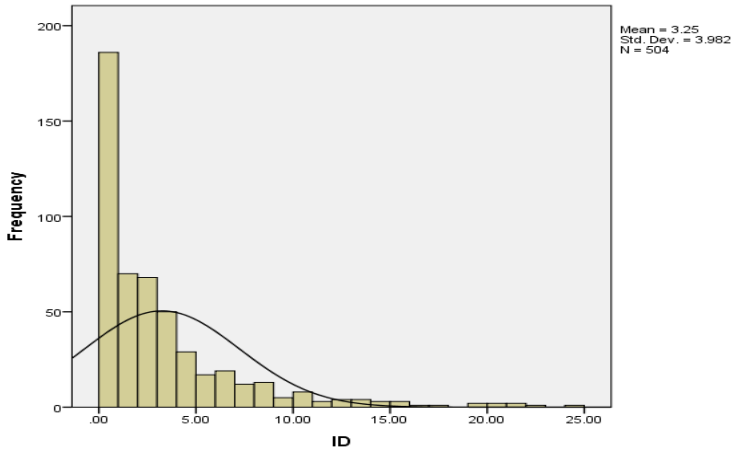

Figure 1: Histogram - Indebtedness

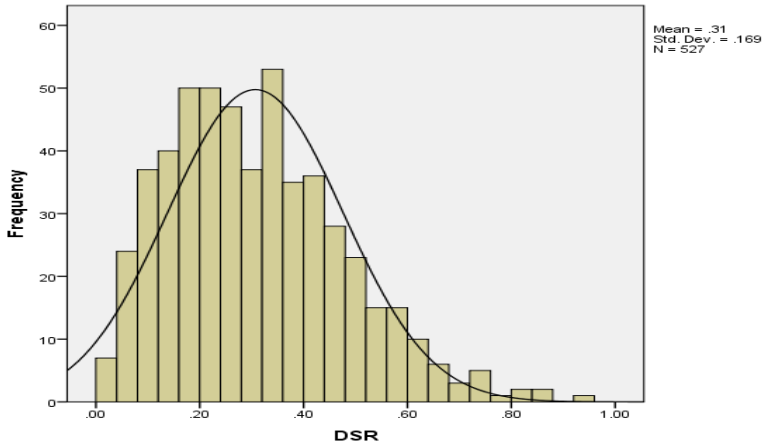

Figure 1: Histogram – Debt service ratio

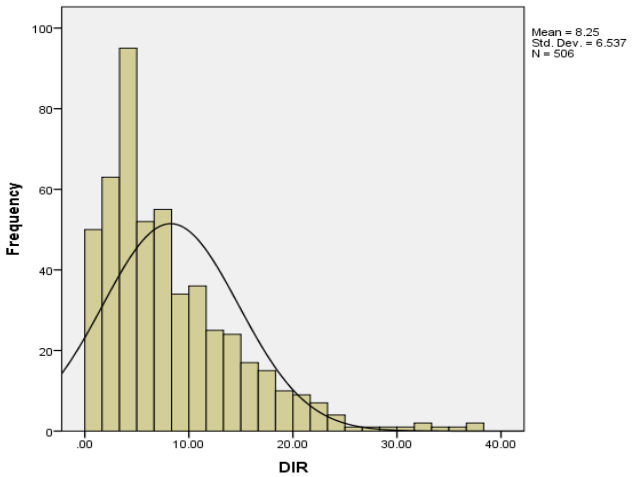

Figure 2: Histogram – Debt income ratio

West, Finch, & Curran (1995) recommend concern if skewness exceeds two and kurtosis exceeds seven. However, ANOVA does not require normality assumptions; it is robust to moderate departures from the normality assumption. ANOVA is an extension of the Two Sample T Test. To use ANOVA, the factor variable values should be integers, and the dependent variable should be quantitative that is interval level of measurement. However, the sample should come from populations with equal variances; Levene's homogeneity-of-variance test can be used to test this assumption. In case of a non-normally distributed variable, non-parametric test for hypothesis testing should be used (SPSS Incorporated, 2010). Considering finding by West, Finch, & Curran (1995), ANOVA and Pearson correlation were employed for hypothesis testing. Levene's homogeneity-of-variance test was significant (p-values = 0.000). In a related study by Liv (2013), ANOVA and Pearson correlation were employed.

Table 3: Distribution of respondents' by monthly loan repayment

Loan repayment class	Frequency	Percent	Valid Percent	Cumulative Percent
below Kshs. 9,999	131	22.5	24.9	24.9
Kshs 10,000 to 19,999	186	32.0	35.4	60.3
Over Kshs 20,000	209	36.0	39.7	100
Total	526	90.5	100	
Missing	55	9.5		
Total	581	100		

Results in Table 3 show that 9.5% of the respondent did not provide loan repayment data. Distribution of loan repayment is in the ratio of 5:7:8 in the three groups; although the mean is Kshs. 23,015 (Table 1).

Table 4: Mean indebtedness by monthly Loan repayment

Loan repayment class			DSR	DIR	ID
Low	below Kshs.9,999		0.1565	4.5121	0.8770
Medium	Kshs 10,000 to19,999		0.2831	7.6256	2.6171
High	over Kshs 20,000		0.4239	11.0164	5.2199
Mean			0.3075	8.2574	3.2559
ANOVA		F	172.401	45.438	59.462
		Sig.	0.000	0.000	0.000

Reviewing results in Table 4 show that the relationship between monthly debt repayment and indebtedness and its dimensions is significant (p-values = 0.000). Pearsons correlation confirm the relationship is strong and positive; DSR (R = 0.668), DIR (R = 0.456) and ID (R= 0.580)

Table 5: Distribution by loan outstanding balance

Loan balance class		Frequency	Percent	Valid Percent	Cumulative Percent
Below Kshs. 399,999		264	45.4	52.2	52.2
Kshs.400,000- 799,999		106	18.2	20.9	73.1
Over Kshs. 800,000		136	23.4	26.9	100
Total		506	87.1	100	
Missing	99	75	12.9		
Total		581	100		

Results in Table 5 show that majority 52% of the respondents had loans of below Kshs. 400,000, although the mean is Kshs. 611,149 (Table 4.7). 13% of the respondents did not provide their loan balance data. In study by Grohmann, Kouwenberg and Menkhoff, 2014), 20% of the respondents did not report the data on debt; they attributed this to those with low financial literacy since they may not know how much debt they have and those with high-embarrassing debts.

Table 6: Mean indebtedness by loan balance

Loan balance class			DSR	DIR	ID
Low	below Kshs. 400,000		0.2399	4.3417	1.2797
Medium	between Kshs. 400,000 - 799,999		0.3297	9.6513	3.4142
High	over Kshs. 800,000		0.4332	14.7568	6.9407
Mean			0.3109	8.2533	3.2559
ANOVA		F	77.949	217.177	141.029
		Sig.	0.000	0.000	0.000

Reviewing results in Table 6 show that the relationship between debt outstanding balance and indebtedness and its dimensions is significant (p-values = 0.000). Pearsons correlation confirm the relationship is strong and positive; DSR (R = 0.499), DIR (R = 0.730) and ID (R = 0.698). Similarly, Liv (2013) found a relationship between loan outstanding balance and over-indebtedness, but on isolating the "multiple loan effect" the relationship disappeared.

Respondents with multiple loans had the highest loan balance. This is the opposite of what a study by Liv (2013) found.

The socio-economic characteristics of respondents surveyed was collated and reviewed. The analysis was based on the information that the respondents provided in the questionnaires. The respondents' work-station county, sector, occupation, management level, gender, age, marital status, family size, level of education, number of years worked, housing category and urban/rural region were captured. The dependence of socio-economic characteristics and indebtedness was analysed; mean and ANOVA statistics were used. Majority of the studies on indebtedness have attempted to explain indebtedness using the socio-economic characteristics (Bicakova, Prelcova & Pasalicoca, 2011; Butrica & Karamcheva, 2013; Gathergood, 2012; Lusardi & Tufano, 2009). This study also related socio-economic characteristics with indebtedness.

Table 7: Mean indebtedness by respondent's province

Province		DSR	DIR	ID
Coast		0.3188	8.4603	3.4886
Nairobi		0.2786	8.0886	3.0447
Central		0.3254	8.2322	3.3516
Total		0.3075	8.2533	3.2559
ANOVA	F	2.244	0.084	0.466
	Sig.	0.082	0.969	0.706

Results in Table 7 show there is insignificant difference (p-value >0.05) in the distribution of indebtedness among the three provinces by all measures. This contradicts several prior studies (Byran, Taylor & Veliziolis, 2010; Winstrand & Olcer, 2014). For instance, a study by Winstrand and Olcer (2014) in Sweden concluded that indebtedness could be explained using the county the household is located.

Table 8: Mean indebtedness by respondent's sectors

Sector		DSR	DIR	ID
Private		0.2741	6.5514	2.4443
Public		0.3311	9.4315	3.8188
Mean		0.3075	8.2533	3.2559
ANOVA	F	14.975	24.868	14.884
	Sig.	0.000	0.000	0.000

The findings in Table 8 indicate that DSR is 27% and 33% for private and public sector respectively. According to Liv (2013) DSR of below 30% is reasonable. It appears the payroll policy in Kenya, of DSR of 30%, is not been followed to the letter in the public sector. The validity of DSR threshold of 30% has been confirmed by various researchers (Herceg & Sosic, 2010). On the other hand, employees in the public sectors have outstanding loan

balances of 9.4 times their total disposable income. Those in private sector have debt balances of 6.6 times their total disposable income. This means public sector employees are more indebted than those in the private sector. Result of ANOVA in Table 8 and Independent Sample Mann-Whitney U Test statistically indicate that the distribution of indebtedness is not the same across the sectors (p-values < 0.05).

Table 9: Mean indebtedness by occupation of respondents

Occupation		DSR	DIR	ID
Agriculture		0.2832	7.3885	2.7744
Health		0.3235	7.1792	2.6039
Education		0.3455	9.5615	3.9846
Manufacturing and construction		0.2080	5.3159	1.8648
Public administration and security		0.3101	9.7625	3.6624
Wholesale and retail		0.2774	7.0440	2.6052
Financial, insurance and professional services		0.3006	7.7408	2.9758
Others		0.3080	7.8763	3.2647
Mean		0.3082	8.2996	3.2809
ANOVA	F	2.355	2.289	1.360
	Sig.	0.023	0.027	0.220

Reviewing the findings in Table 9 indicate that the occupation of the respondent can significantly (p-value < 0.05) explain indebtedness at least by DSR and DIR measures. DSR is above the mean in three occupations, namely public administration, education and health. Further, education and public administration are above the mean DIR and ID. By DSR measure those in the education occupation are the most indebted (DSR = 35%) while those in public administration occupation are the most indebted by DIR measure (DIR = 9.76). Majority of the employees in the education and public administration occupations are in the public sector. This could explain why public sector employees are more indebted than those in the private sector. Byran et al., (2010) found that people in high status occupation have lower DIR than those in lower status occupation, alluding this to the permanent and relative income effects. On the other hand, Liv (2013) found no connection between economic activity of the respondents and over-indebtedness; although those in agricultural activities were more indebted.

Table 10: Mean indebtedness by level of management

Management level		DSR	DIR	ID
Low		0.2999	8.8268	3.3523
Middle		0.3140	7.9918	3.3162
Top		0.3011	6.8425	2.6614
Mean		0.3078	8.3059	3.2837
ANOVA	F	0.432	1.557	0.454
	Sig.	0.649	0.212	0.635

Table 10 shows that respondents in the top layer of management have below average indebtedness considering ID and DIR measures. Surprisingly, those in the low layer of management have the highest DIR and ID. Cynamon and Fazzari (2008) alludes to reference grouping which is consistent with the relative income hypothesis - "keeping with jonesses". Byran et al. (2010) also found that high status employees have lower DIR than those with lower status; alluding this to the "income effect". However, level of management of a respondent cannot predict indebtedness significantly (p-value > 0.05).

Table 11: Mean indebtedness by gender of respondents

Gender		DSR	DIR	ID
Female		0.3263	8.7666	3.6887
Male		0.2969	8.0346	3.0555
Total		0.3071	8.2854	3.2711
ANOVA	F	3.561	1.398	2.801
	Sig.	0.060	0.238	0.095

The findings in Table 11 indicate that women are more indebted than men using the three dimension of indebtedness. This supports Lusardi and Tufano (2009) who found the women more indebted. Consistent with Liv (2013), this study found that there is no statistically significant (p-value < 0.05) relationship between gender and indebtedness of the respondents.

Table 12: Mean indebtedness by age of respondents

Age groups			DSR	DIR	ID
Young	Below 55 years		0.2834	7.7937	2.9321
Middle	36– 45 years		0.3246	8.5824	3.4859
Elderly	Over 46 years		0.3489	9.0253	3.8037
	Mean		0.3076	8.2564	3.2555
	ANOVA	F	6.112	1.375	1.884
		Sig	0.002	0.254	0.153

Table 12 shows that respondents who are oldest (over 46 years) have the highest indebtedness by all dimensions, followed by the medium aged and trailed by the youngest. This is confirmed by Pearsons correlation. The relationship between age and indebtedness is positive and significant (p-value < 0.05). This finding is inconsistent with the life cycle hypothesis that the curve for indebtedness against age is hump shaped. This is also inconsistent with several related studies, for example Lusardi and Tufano (2009) concluded that indebtedness is for the young. Statistically, age of the respondents can be used to explain indebtedness (p-value < 0.05) at least by DSR dimension. Dick and Jaroszek (2013) also concluded that elderly people are reluctant to buy in credit generally.

Table 13: Mean indebtedness by marital status of the respondents

Marital status		DSR	DIR	ID
Single		0.2763	7.6079	2.8001
Married		0.3158	8.4124	3.4010
Separated/Divorced		0.2986	9.0741	2.9354
Widow/Widower		0.3707	8.8585	3.2744
Mean		0.3072	8.2520	3.2508
ANOVA	F	2.553	0.552	0.711
	Sig	0.093	0.655	0.565

Table 13 shows that the separated & divorced and the widow & widower have higher DIR. This supports finding of studies by Civic consulting (2013) and Byran et al., (2010) which found that lone parents have high indebtedness and also that living in couple reduces indebtedness. However, statistically, marital status of a respondent cannot be used to significantly (p-value > 0.05) predict indebtedness.

Table 14: Mean indebtedness by family size of the respondents

Family size		DSR	DIR	ID
Small	≤ 4 member	0.2931	7.8837	3.0260
Big	> 4 members	0.3595	9.6870	4.1204
Mean		0.3075	8.2752	3.2651
ANOVA	F	14.074	6.549	6.476
	Sig	0.000	0.011	0.011

Finding in Table 14 indicate that the household with more than four members have exceeded the mean indebtedness by all the dimensions. This supports finding of prior studies which found that family size increases indebtedness (Civic consulting, 2013; Legge & Heynes, 2009). Having a lot of children is expected to put a strain on the household resources and hence the positive relationship. It is not surprising that family size can significantly (p-values < 0.05) explain indebtedness by all the dimensions. This finding are inconsistent with a study by Liv (2013), which found family size had a statistically insignificant (p-value > 0.05) relationship with indebtedness.

Table 15: Mean indebtedness by levels of education of the respondents

Level of Education		DSR	DIR	ID
Low	< Bachelor degree	0.2890	7.9875	2.8773
High	≥ Bachelor degree	0.3185	8.4403	3.4700
Mean		0.3085	8.2885	3.2712
ANOVA	F	3.559	0.534	2.453
	Sig.	0.058	0.465	0.118

Results in Table 15 show that the most educated respondents are more indebted using all dimensions of indebtedness. This finding are consistent with several prior studies (Lusardi &

Tufano, 2009; Tennant, Wright and Jackson, 2009; Byran et al., 2010). For example a study by Byran et al. (2010) found that the low educated had higher DSR while the better educated had higher DIR because of their higher average incomes - "the income effect". It is expected that the better educated with have well paying jobs than their counterparts who are not as educated. Similar to a study by Liv (2013), level of education did not have a statistically significant (p-value > 0.05) relationship with indebtedness and its dimensions. Table 15 shows that there is no significant difference between indebtedness of respondents with low education and those with high education.

Table 16: Mean Indebtedness by length of employment of the respondents

Length of employment		DSR	DIR	ID
Short	less than 10 years	0.2810	7.6550	2.8465
Medium	11 to 20 years	0.3405	9.2031	3.8142
Long	over 21 years	0.3463	8.7296	3.7458
Mean		0.3075	8.2533	3.2559
ANOVA	F	9.603	3.096	3.515
	Sig.	0.000	0.046	0.030

Table 16 shows that respondents with short period of employment have the lowest DIR and ID, followed by the longest-serving and trailed by those with moderate period in employment. This is consistent with the life cycle hypothesis that the graph of age against indebtedness is hump-shaped: those in the middle age are more indebted. Therefore, the results support the life cycle hypothesis. Results in Table 16 shows that the length of employment explains indebtedness by all dimensions significantly (p-value < 0.05).

Table 17: Mean indebtedness by housing type of the respondents

Housing type		DSR	DIR	ID
Owner occupiers		0.3537	9.3420	4.1447
Tenants		0.2853	7.6515	2.7769
Mortgagor		0.4004	12.4259	5.8525
Housed by parents/guardian		0.2388	4.8369	1.9330
Housed by employer		0.3292	9.8427	4.0471
Mean		0.3075	9.8427	3.2559
ANOVA	F	5.857	4.236	4.774
	Sig.	0.000	0.002	0.001

Table 17 indicates that respondents residing in mortgaged houses have highest indebtedness followed by the owner-occupiers by all dimensions of indebtedness. This could be because they are servicing loans used to acquire their homes. It is not surprising that mortgagor have the highest DIR; long-term indebtedness. In mortgage lending, DSR is a typical cut off rate of 36% (Johnson & Li, 2010). It is not clear why those housed by employers have higher indebtedness than tenants. Generally, finding in Table 17 contradicts Byran et al. (2010), Liv

(2013) and Schicks (2012) who found tenants at risk of over-indebtedness as opposed to homeowners.

In conclusion, results in Table 17 show that the housing category explains indebtedness by all dimensions significantly (p-value < 0.05). Even when housing type is re-classified into two; tenants and home owners, ANOVA and Pearsons correlation results are that housing class is significantly (p-values =0.000) associated with indebtedness and its dimensions. Homeowners are more indebted than tenant. These results are also consistent with Crawford and Faruqui (2012) who found that demand for credit depends considerably on home ownership status.

Table 18: Mean indebtedness work station distance to county headquarters

			DSR	DIR	ID
Urban	Less than 15 Kilometres		0.3028	7.9330	3.0716
Rural	Over 15 Kilometres		0. 3248	9.3215	3.8930
Mean			0.3077	8.2476	3.2572
ANOVA		F	1.521	3.996	3.726
		Sig.	0.218	0.046	0.054

Results in Table 18 show that respondents living in urban areas are less indebted than those in rural areas. This contradicts previous studies which found that individual living in urban areas were more indebted (Byran et al., 2010; Bicakova et al., 2011; Liv, 2013; Schicks, 2012, Herceg & Sosic, 2010). For instance a study by Herceg and Sosic (2010) concluded that households dwelling in rural places had lower chances of having debt than those in urban places. However, results in Table 18 show that the rural/urban status of a respondent can only explains indebtedness by DIR dimension significantly (p-value =0.046).

Table 19: Mean indebtedness by disposable salary of the respondents

Disposable salary			DSR	DIR	ID
Low	Less than Kshs.49,999		0.2890	8.0570	2.9768
Middle	Between Kshs.50,000-79,999		0.3132	8.4599	3.3959
High	Above 80,000		0.3406	8.2293	3.6094
	Mean		0.3074	8.2449	3.2534
	ANOVA	F	3.256	0.196	1.001
		Sig.	0.039	0.822	0.368

Finding in Table 19 show that level of income has statistical power (p-values > 0.05) to explain indebtedness, at least by DSR measure. These results were also confirmed by Kruskal-Wallis Independent Sample Test; the distribution of DSR is not the same across the disposable salary categories. These results are inconsistent with a study by Barba and Pivetti (2009) which found DSR highest in low income households. Byran et al. (2010) found that

lower income earners have higher DSR than those with higher incomes although the DIR for the high income blanket is higher.

Table 20: Mean indebtedness by non-employment income of the respondents

Other income			DSR	DIR	ID
Low	Less than Kshs.19,999		0.3224	8.8209	3.6078
Medium	Between Kshs 20000-39,999		0.2824	7.3713	2.5677
High	Over Kshs 40,000		0.2604	6.6695	2.3053
Mean			0.3054	8.2296	3.2187
ANOVA		F	5.814	4.451	5.057
		Sig.	0.003	0.012	0.007

Results in Table 20 shows that respondents with low non-employment income or none are more indebted than those with moderate or high. This relationship was statistically significant (p-values < 0.05) using all the dimensions of indebtedness. This results were also confirmed by Kruskal-Wallis Independent Sample Test - the distribution of indebtedness is not the same across the non- employment income categories. The reason why person with high amount of other incomes are less indebted is because of it "dilution effect". Under permanent income hypothesis, person borrows using fixed and predictable income such that any impromptu income only dilutes the indebtedness initially acquired. In the same breath, Liv (2013) found a negative significant relationship between non-employment income from entrepreneurial activities, with those with inadequate income being more indebted.

Table 21: Mean indebtedness by total income of the respondents

Disposable salary			DSR	DIR	ID
Low	less than Kshs.49,999		0.3143	8.7075	3.4533
Medium	between Kshs.50,000-79,999		0.3064	8.2805	3.3518
High	above Kshs. 80,000		0.3001	7.7186	2.9480
Mean			0.3073	8.2553	3.2563
ANOVA		F	0.326	1.017	0.767
		Sig.	0.722	0.362	0.465

The significance of the results in Table 20 is blurred by those of Table 19 because the proportion of non-employment incomes to disposable salary is meagre. Therefore, results in Table 21 show that the total income of a respondent cannot explain indebtedness significantly (p-value > 0.05).

Conclusions

The magnitude of loan repayment and loan outstanding balance has a direct bearing on the indebtedness of the employees in the formal sector. Public sector employees are more indebted. The larger the family sizes the higher the indebtedness while those with the shortest period in employment are more indebted. The nature of housing also determines indebtedness

with mortgagors obviously more indebted. Therefore socio-economic characteristics can be directly associated with indebtedness.

References

Albrecht, W., Albrecht, S. & Albrecht, C. (2004). Fraud and corporate executives: Agency, stewardship and broken trust. Journal of Forensic Accounting , 5, 109-130.

Barba, A. & Pivetti, M. (2009). Rising household debt: Its causes and macroeconomic implications - a long-period analysis. Cambridge Journal of Economics (33), 113–137.

Bicakova, A., Prelcova, Z. & Pasalicoca, R. (2011). Who borrows and who may not repay? Charles university, academy of Sciences of the Czech Republic. Prague: Center for Economic Research and Graduate Education.

Butrica, B. A. & Karamcheva, N. S. (August, 2013). Does household debt influence the labor supply and benefit claiming decisions of older Americans? 15th Annual Joint Conference of the Retirement Research Consortium. Washington, D.C: Urban Institute.

Byran, M., Taylor, M. & Veliziolis, M. (2010). Overindebtedness in Great Britain:An analysis using the wealth and asset survey and household debtors survey. University of Essex. Institute of social and Econonmic Research.

Civic, C. (2013). The over-indebtedness of European households: Updated mapping of the situation, nature and causes, effects and initiatives for alleviating its impact. Berlin: Civic Consulting of the Consumer Policy Evaluation Consortium.

Coustin, F. d. (2012, September). Dealing with household overindebtedness. Banque de France .

Crawford, A. & Faruqui, U. (2012, Winter). What explains trends in household debt in Canada? Bank of Canada Review .

Cynamon, B. Z. & Fazzari, S. M. (2008). Household debt in the consumer age: Source of growth—risk of collapse. Capitalism and Society , 3 (2).

Dew, J. (2008). Debt change and marital satisfaction change in recently married couples. Family Relations , 57 (1), 60-71.

Dey, S., Djoudad, R. & Terajima, Y. (2008). A tool for assessing financial vulnerabilities in the household sector. Bank of Canada Review (Summer), pp. 45−54 , Summer, 45-54.

Dick, C. D. & Jaroszek, L. M. (2013). Knowing what not to do: Financial literacy and consumer credit choices. Mannheim, Germany: Centre for European Economic Research .

Djoudad, R. (2011). A framework to assess vulnerabilities arising from household indebtedness using microdata. ThE IEB International Journal of Finance , 3, 150-169.

Gathergood, J. (2012). Self-control, financial literacy and consumer over-indebtedness. Journal of Economic Psychology (33), 590-602.

Georgarakos, D., Lojschova, A. & Ward-Warmedinger, M. (2010). Mortgage indebtedness and household financial distress. Working Paper Series (No 1156).

Gloukoviezoff, G. (2007). New frontiers in banking services: Emerging needs and tailored products for untapped markets. (L. Anderloni, M. D. Braga, & E. M. Carluccio, Eds.) New York.

Grohmann, A., Kouwenberg, R. & Menkhoff, L. (2014). Financial literacy and its consequences in the emerging middle class. Kiel, Germany: Kiel Institute for the World Economy.

Herceg, I. & Sosic, V. (2010). The anatomy of household debt build up: What are the implications for the financial stability in Croatia? The Sixteenth Dubrovnik Economic Conference. Dubrovnik: Croatian National Bank.

Idowu, A. (2009). An assessment of fraud and its management in Nigeria commercial banks. European Journal of Social Sciences , 10 (4).

Ironfield-Smith, C., Keasey, K., Summers, B., Duxbury, D. & Hudson, R. (2005). Consumer debt in the UK: Attitudes and implications. Journal of Financial Regulation and Compliance , 13 (2), 132–141.

Jones, R. S. & Kim, M. (2014). Addressing high household in Korea. OECD Economics Department Working Papers (No. 1164).

Keown, A. J. (2010). Personal finance: Turning money into Wealth. (5, Ed.) New Jersey: Pearson prentice Hall.

Kim, J., Sorhaindo, B. & Garman, T. (2006). Relationship between financial stress and workplace absenteeism of credit counseling clients. Journal of Family and Economic Issues .

KNBS. (2015). Kenya facts and figures, 2015. Nairobi: Kenya National Bureau of Statistics.

Legge, J. & Heynes, A. (2009). Beyond reasonable debt:The extent to which financial behaviour can explain over-indebtedness amongst New Zealand families. Social Policy Journal of New Zealand (35).

Liv, D. (2013). Study on the drivers of over-indebtedness of microfinance borrowers in Cambodia: An in-depth investigation of saturated areas.

Lusardi, A. & Tufano, P. (2009). Debt literacy, financial experiences, and overindebtedness. NBER Working Paper No. 14808.

Meadowcroft, J. (2006). Viva personal debt. Institute of Economic Affairs .

Mian, A. & Sufi, A. (2010b). Household leverage and the recession of 2007 to 2009. IMF Economic Review , 58, 74-117.

Mian¸ A. & Sufi, A. (2010a). Household debt and the weak U.S. economic recovery. Federal Reserve Bank of SanFrancisco Economic Letter.

Munyoki, I. & Okech, T. C. (2012). Empirical analysis of personal debt among the youth in Kenya: The case of graduate students in Kenyan Universities. International Journal of Academic Research in Economics and Management Sciences , 4 (4).

OECD. (2014). Household debt in OECD Factbook 2014: Economic, Environmental and Social Statistics. OECD Publishing.

Paile, K. (2013). The Impact of the National Credit Act on Household Debt Levels in South Africa. Johannesburg: University of the Witwatersrand, Unpublished Master Thesis.

Schicks, J. (2012). The sacrifices of microborrowers in Ghana –A customer-protection perspective on measuring over-indebtedness. Brussels, Belgium: Research Institute in Mangement Science.

Scott, I. H. (2007). Bankruptcy abuse prevention and consumer protection Act of 2005: how the credit card industry's perseverance paid off. Journal of Economic Issues , XLI (4).

SPSS Incorporated. (2010). IBM SPSS statistics base 19. Chicago, United States: SPSS Incorporated.

Tennant, J., Wright, J. & Jackson, J. (2009). Financial hardship and financial literacy: A case study from the Gippsland region. The finsia Journal of applied finance (2).

Winstrand, J. & Olcer, D. (2014, May). How indebted are Swedish households? Economic Commentaries (1).

Yoo, K. & Hwang, J. (2013, March 13). why has the household debt ever increased in Korea? Empirical analysis of the persistence in household debt. Korea Insurance Research Institute .