models that aim at explaining relationships among multiple variables. It examines the structure of interrelationships expressed in a series of equations similar to a series of multiple regression equations (Hair *et al*, 2010). They further emphasize that these equations depict all of the relationships among constructs used in the analysis. Hypothesis one proposed that population increase has no direct positive effect on housing deficit. The result revealed a statistically significant relationship since the calculated p–value 0.003 was less than 0.05 ($p < 0,05$), table 2.

Table 2: Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
HD	<---	POP	.061	.021	2.936	.003	par_8
B13v	<---	HD	1.000				
ENV	<---	HD	1.189	.253	4.702	***	par_9
ENV	<---	POP	.121	.033	3.685	***	par_10
B13iv	<---	HD	.588	.196	3.002	.003	par_1
B13iii	<---	HD	2.326	.470	4.949	***	par_2
B13ii	<---	HD	2.315	.468	4.942	***	par_3
B13i	<---	HD	2.616	.526	4.976	***	par_4
V4	<---	ENV	1.000				
V3	<---	ENV	.916	.039	23.652	***	par_5
V2	<---	ENV	.695	.040	17.488	***	par_6
VI	<---	ENV	.645	.051	12.769	***	par_7
B13iv	<---	B13v	.339	.029	11.649	***	par_11

Source: Researchers' Computation

Hypothesis two equally proposed that population increase has no positive influence on environmental degradation. The result showed a statistically significant relationship ($p < 0.01$). Furthermore, hypothesis three proposed that a positive relationship does not exist between housing deficit and environmental degradation. The result also indicated the presence of a statistically significant positive relationship. The standardized regression weights (table 3), showed that one standard deviation increase in population resulted in increase in housing deficit by 0.169.

Table 3: Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
HD	<---	POP	.169
B13v	<---	HD	.239
ENV	<---	HD	.528
ENV	<---	POP	.147
B13iv	<---	HD	.168
B13iii	<---	HD	.661
B13ii	<---	HD	.651
B13i	<---	HD	.704
V4	<---	ENV	.834
V3	<---	ENV	.908
V2	<---	ENV	.670
VI	<---	ENV	.515
B13iv	<---	B13v	.405

Source: Researchers' Computation

Furthermore, one standard deviation increase in population brought about 0.147 standard deviation increase in environmental degradation. Very importantly too, one standard deviation increase in housing deficit resulted in 0.528 standard deviation increase in environmental degradation. Population increase and housing deficit accounted for 32.6% of the variance in environmental degradation, (table 4).

Table 4: Squared Multiple Correlations: (Group number 1 - Default model)

			Estimate
HD			.029
ENV			.326
B13v			.057
VI			.266
V2			.449
V3			.824
V4			.696
B13i			.496
B13ii			.424
B13iii			.437
B13iv			.225

Source: Researchers' Computation

3.4 Model Fit Summary

The model revealed a chi-square result of $X^2 = 106.003$, (table 5).

Table 5: CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	24	106.003	31	.000	3.419
ıturated model	55	.000	0		
Independence model	10	1855.521	45	.000	41.234

Source: Researchers' Computation

Chi-square is one of the statistics used for measuring goodness of fit. Its objective is to determine the extent to which the estimated covariance matrix is equal to the observed covariance matrix in the model. If the p-value of the chi-square is non-significant, it is an indication of model fit. In this study, it is 0.000 at degrees of freedom (*df*) = 31; however, the researchers used additional measures of model fit such as, Goodness of Fit Index (GFI) = 0.966; Adjusted Goodness of Fit Index (AGFI) = 0.939, (table 6).

Table 6: RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.035	.966	.939	.544
Saturated model	.000	1.000		
Independence model	.197	.542	.441	.444

Source: Researchers' Computation

The Comparative Fit Index (CFI) and Incremental Fit Index (IFI) = 0.959, (table 7), while the Root Mean Square Error of Approximation (RMSEA) = 0.064, (table 8).

Table 7: Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.943	.917	.959	.940	.959
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Source: Researchers' Computation

Table 8: RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.064	.051	.077	.044
Independence model	.259	.249	.269	.000

Source: Researchers' Computation

The above fit indices are adjudged moderate and agree with (Ahmad *et al*, 2006). They were arrived at following a Post hoc Model Modification (PHMM). The indicator variables show standardized regression weights greater than or equal to 5 except for indicator variables $B_{13\ iv}$and B_{13v}. These show a moderate convergent validity.

The estimation of the SEM model in this work was based on the maximum likelihood. Analysis of Moment Structures (AMOS) software, version 18 was used for SEM computations. The oval shaped constructs shown in the model are latent variables (constructs), while the rectangular shaped are observed variables (figure 1). The observed rectangular variable (POP) indicates population growth, while the latent construct (HD) indicates housing deficit. Housing deficit comprises five (5) indicators used for measuring housing deficit. Each indicator variable has an error term attached to it. Furthermore, the latent construct (ENV) stands for environmental degradation composed of four (4) indicator variables

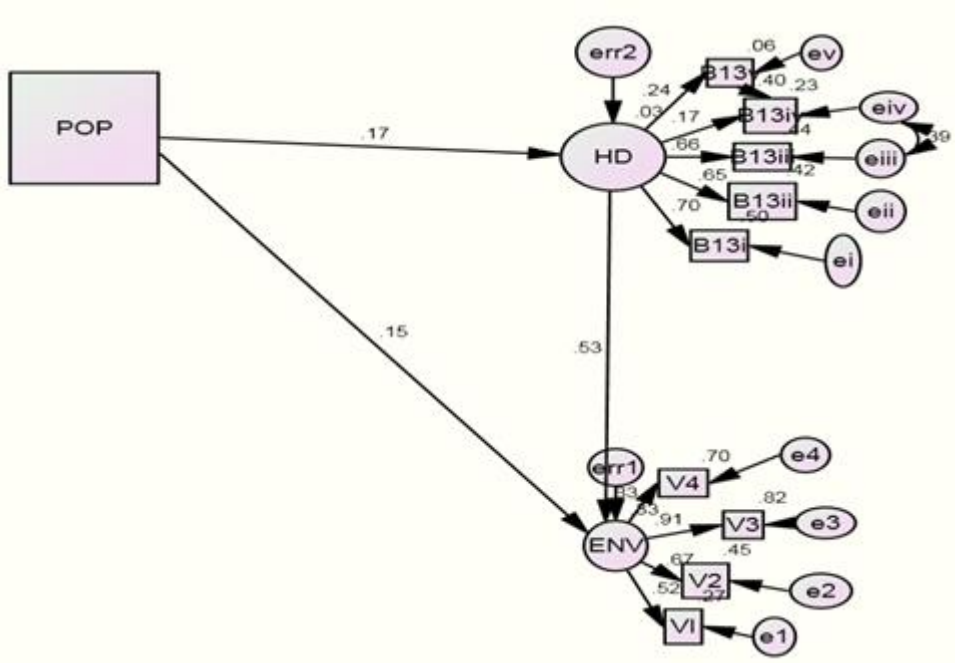

Figure 1: Model

Source: Researchers

3.5. Summary of Findings

Housing deficit (HD) increased significantly as population increased (standardized coefficient = 0.169, $p<0.05$). Also, increased (HD) significantly increased (ENV), with standardized coefficient = 0.528, $p < 0.05$. Furthermore, increase in (POP) significantly increased (ENV), with standardized coefficient = 0.147, $p< 0.05$. The 32.6% of the variance in (ENV) was accounted for by (POP) and (HD), while 2.9% of the variance in (HD) was accounted for by (POP).

Interestingly, population increase accounts for 2.9% of the variance in housing deficit. The small percentage variance indicates that error term, being factors unknown to the researchers accounts for the remaining 97.1%. This indicates that there are other possible factors that could have accounted for the remaining variance such as, natural disasters, flooding, fire and some other man-made variables. As earlier stated, population increase and housing deficit account for 32.6% variance in environmental degradation while other factors (error terms) account for the remaining 67.4%.

4. Conclusion

Interesting revelations were made from this study. There is a statistically significant linkage between population growth and housing deficit as well as between housing deficit and environmental degradation. When there is uncontrolled population increase, both housing and other basic infrastructural facilities are subjected to undue pressure and this takes a toll on environmental quality. It is therefore suggested that appropriate housing development framework be put in place to adequately respond to unanticipated rise in the urban population, to ensure environmental sustainability.

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