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Food Security in South Africa: An assessment of food insecurity in relation to demographic data

Issue

Food Stability refers to the access of food without encountering some temporary or permanent lack of food access. South Africa (SA) is known to be food secure nationally, but this is shown to differ from household and individual levels [1]. In 2013, it was found that 26% of South African were food insecure and 28.3% were at risk of hunger [2]. Food insecurity in SA is closely linked with socioeconomic status and income. As 56% of the population lives in poverty and 28% lives in extreme poverty, it is difficult for many South African households to afford enough food to feed an entire household [3].

Policy recommendations:

- Policy makers should construct services and strategies aimed at stimulating enterprise, social capital, and community capacity building in deprived areas. As food security is linked to socioeconomic status, this is in the aim of developing the social and economic life of the poorest and most disadvantaged members of society in SA [4].
- Unemployment remains high in SA and social grants are not enough to cover the cost of living. Social grants do reduce poverty and food insecurity so policy makers should focus more on strategies of employment creation [3].
- A policy strategy to improve food security of poor and disadvantaged households and communities could be to provide greater resources for households to practice own food production.

About this research

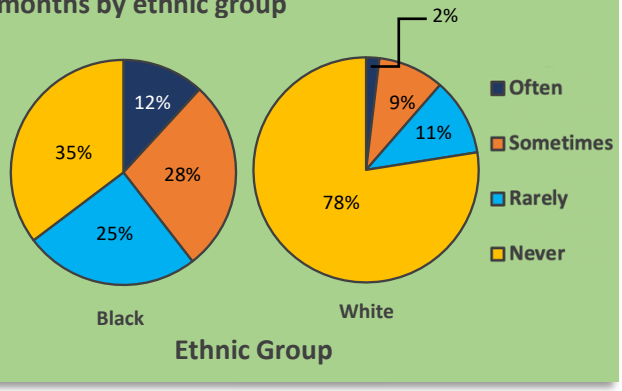
This assessment uses data collected from South Africans in the World Values Survey between 2010 and 2014. The topic of investigation is the response to the survey question that investigates the frequency individuals or households report going without food to eat over the previous 12 months. Through the usage of the statistical analysis software, SPSS, the research explores the 3,504 survey responses in relation to demographic variables, such as: income, employment, socioeconomic status, race, and family size.

Key Findings

- Almost half of the respondents see themselves as part of the underclass, of which 14% said they often go without food. Compared to the upper class, the probability the underclass will often go without food is 2.25 times higher.

- The chance part-time workers and those unemployed often go without food is 1.6 and 1.9 times higher respectively, compared to those employed fulltime. Of those who were often food insecure, 46.4% were unemployed.

Figure 1: Frequency individuals or families have gone without enough food to eat in the last 12 months by ethnic group



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Factors explaining food security for black individuals and families
Compared to a baseline for white ethnicity after accounting for differences in…

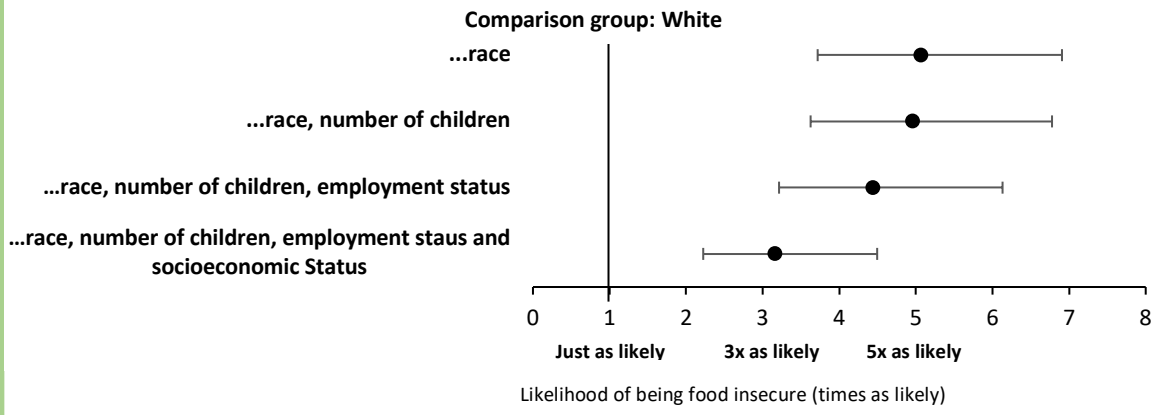

Figure 2: This graph portrays the increased risk black individuals will often be food insecure compared to white ethnicity. Likelihood is plotted as dots, with lines sticking out, known as confidence intervals. A likelihood score greater than 1 indicates how many more times likely the risk is to occur compared to the comparison group, if the confidence intervals overlap the comparison group, it means we are unsure of the risk. When taking account of other demographic differences, the risk of food insecurity decreases but the risk of food insecurity remains higher for black ethnicity. Meaning it can be determined that differences in the demography's can predict higher food insecurity.

- The probability that black individuals or families in SA will have been food insecure is 5 times higher than that of white individuals (figure 2). As seen in figure 1, ethnicity appears to influence food security. As such, out of all those that said they often were food insecure, 92% were black.

- Larger families are more likely to suffer from food insecurity. Compared to those with no children, individuals with five or more children are at least twice as likely to be food insecure. Specifically, those with 6 children are 6.8 times more likely to have been food insecure.

Argument

This research has made use of methods that can describe, explain, and predict the relationship between food security and other variables. This provided informative and interpretable results from a large data set that should lend well to policy recommendations.
This research finds that demographic differences, like race, income, and family size, have an influence on food security.

This briefing takes into consideration that SA has already implemented policy strategies to reduce food insecurity by attempts to reduce poverty through social grants. While social grants provide improved means to secure food, research shows that alone they are not eradicating food insecurity [3]. Hence, this policy briefing aims to make recommendations to improve the food security of vulnerable communities (BAME) and poor households by not relying solely on social grants.
This policy brief does not intend to over-simplify the complexity of food security. It is aware that food insecurity is exacerbated by recent food crises in SA and insufficient investments in agriculture, for example. In addition, the World Values Survey was missing data in factors of interest, such as habitat, rural/urban. As such, further research and policy recommendations will hopefully lend to successful strategies to improve food security.

Further Reading:

[1] Oluwatayo, I, B. (2019) Towards assuring food security in South Africa: Smallholder farmers as drivers. *AIMS Agriculture and Food* [online]. 4 (2), pp. 485-500.
[2] Megbowon, E, T. and Mushunje, A. (2016) Assessment of food security among households in Eastern Cape Province. *International Journal of Social Economics* [online]. 45 (1), pp. 2-17.
[3] Chakona, G. and Shackleton, C, M. (2019) Food insecurity in South Africa: To what extent can social grants and consumption of wild food eradicate hunger? *World Development Perspectives* [online]. 13, pp. 87-94.
[4] Noya, A. and Clarence, E. (2009) *Community capacity building: fostering economic and social resilience* [online]. Available from: https://www.oecd.org/cfe/leed/44681969.pdf

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Appendix 1: Logistic regression SPSS Syntax and Outputs for often being food insecure with a base of white ethnicity (Ethnic group (1) = Black, Ethnic group (2) = coloured, Ethnic Group (3) = Indian)

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Ethnic group			160.712	4	<.001			
	Ethnic group(1)	1.623	.158	105.422	1	<.001	5.067	3.717	6.907
	Ethnic group(2)	.662	.210	9.913	1	.002	1.939	1.284	2.927
	Ethnic group(3)	-.142	.373	.145	1	.703	.867	.418	1.801
	Ethnic group(4)	-19.154	32815.828	.000	1	1.000	.000	.000	.
	Constant	-2.048	.153	179.174	1	<.001	.129		

a. Variable(s) entered on step 1: Ethnic group.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	209.966	4	<.001
	Block	209.966	4	<.001
	Model	209.966	4	<.001

```
DATASET ACTIVATE DataSet1.
LOGISTIC REGRESSION VARIABLES hapbinary
  /METHOD=ENTER X051 X011 X028
  /CONTRAST (X051)=Indicator (2)
  /PRINT=CI(95)
  /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
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Appendix 2: Logistic regression SPSS Syntax and Outputs for often being food insecure with a base of full-time (Employment status (1) = Part-time, Employment status (6) = unemployed)

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Employment status			71.187	6	<.001			
	Employment status(1)	.493	.162	9.227	1	.002	1.636	1.191	2.249
	Employment status(2)	-.134	.224	.361	1	.548	.874	.564	1.356
	Employment status(3)	.409	.129	10.082	1	.001	1.505	1.169	1.937
	Employment status(4)	-.268	.168	2.531	1	.112	.765	.550	1.064
	Employment status(5)	.158	.132	1.436	1	.231	1.171	.905	1.516
	Employment status(6)	.632	.094	44.939	1	<.001	1.881	1.564	2.262
	Constant	-.980	.074	176.162	1	<.001	.375		

a. Variable(s) entered on step 1: Employment status.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	73.152	6	<.001
	Block	73.152	6	<.001
	Model	73.152	6	<.001

```
DATASET ACTIVATE DataSet1.
LOGISTIC REGRESSION VARIABLES hapbinary
  /METHOD=ENTER X028
  /CONTRAST (X028)=Indicator (1)
  /PRINT=CI(95)
  /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
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Appendix 3: Logistic regression SPSS Syntax and Outputs for often being food insecure with a base of upper class (Social Class (subjective) (4) = Under class)

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Social class (subjective)			222.130	4	<.001			
	Social class (subjective) (1)	-.617	.352	3.073	1	.080	.539	.270	1.076
	Social class (subjective) (2)	.020	.339	.004	1	.953	1.020	.525	1.981
	Social class (subjective) (3)	-.385	.337	1.305	1	.253	.681	.352	1.317
	Social class (subjective) (4)	.814	.330	6.087	1	.014	2.257	1.182	4.310
	Constant	-.933	.326	8.186	1	.004	.394		

a. Variable(s) entered on step 1: Social class (subjective).

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	237.078	4	<.001
	Block	237.078	4	<.001
	Model	237.078	4	<.001

```
DATASET ACTIVATE DataSet1.
LOGISTIC REGRESSION VARIABLES hapbinary
  /METHOD=ENTER X045
  /CONTRAST (X045)=Indicator (1)
  /PRINT=CI(95)
  /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
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Appendix 4: Multiple logistic regression SPSS Syntax and Outputs for often being food insecure with a base of white, no children, full-time and upper class. (Final output used to produce odds ratio used in figure 2). Excel table used to produce chart for figure 2.

```
DATASET ACTIVATE DataSet1.
LOGISTIC REGRESSION VARIABLES hapbinary
  /METHOD=ENTER X051 X011 X045 X028
  /CONTRAST (X051)=Indicator (2)
  /CONTRAST (X011)=INDICATOR (1)
  /CONTRAST (X045)=Indicator (1)
  /CONTRAST (X028)=INDICATOR (1)
  /PRINT=CI(95)
  /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
```

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	370.260	22	<.001
	Block	370.260	22	<.001
	Model	370.260	22	<.001

	A	B	C	D	E	F	G
1	Comparisons	Odds Ratio	Lower 95% C	Graph lower	Upper 95% C	Graph Upper	Position
2	...race	5.067	3.717	1.35	6.907	1.84	3.5
3	...race, number of children	4.956	3.625	1.331	6.777	1.821	2.5
4	...race, number of children, employment status	4.439	3.213	1.226	6.131	1.692	1.5
5	...race, number of children, employment staus and socioeconomic status	3.161	2.223	0.938	4.494	1.333	0.5

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Ethnic group			76.021	4	<.001			
	Ethnic group(1)	1.151	.180	41.108	1	<.001	3.161	2.223	4.494
	Ethnic group(2)	.267	.229	1.363	1	.243	1.306	.834	2.044
	Ethnic group(3)	-.173	.382	.206	1	.650	.841	.398	1.777
	Ethnic group(4)	-19.408	32815.828	.000	1	1.000	.000	.000	.
	How many children do you have			25.111	8	.001			
	How many children do you have(1)	.006	.112	.002	1	.961	1.006	.807	1.253
	How many children do you have(2)	-.048	.113	.178	1	.673	.953	.763	1.190
	How many children do you have(3)	-.027	.139	.037	1	.848	.974	.741	1.280
	How many children do you have(4)	-.127	.188	.456	1	.499	.881	.609	1.274
	How many children do you have(5)	.666	.273	5.933	1	.015	1.947	1.139	3.327
	How many children do you have(6)	1.846	.523	12.462	1	<.001	6.336	2.273	17.660
	How many children do you have(7)	.883	.528	2.798	1	.094	2.418	.859	6.806
	How many children do you have(8)	.938	.596	2.476	1	.116	2.555	.794	8.222
	Employment status			9.005	6	.173			
	Employment status(1)	.058	.173	.111	1	.739	1.059	.755	1.487
	Employment status(2)	-.151	.246	.376	1	.540	.860	.531	1.393
	Employment status(3)	-.018	.152	.014	1	.905	.982	.728	1.324
	Employment status(4)	-.400	.186	4.640	1	.031	.670	.466	.965
	Employment status(5)	-.260	.156	2.764	1	.096	.771	.568	1.048
	Employment status(6)	-.005	.110	.002	1	.965	.995	.802	1.234
	Social class (subjective)			97.405	4	<.001			
	Social class (subjective) (1)	-.604	.365	2.748	1	.097	.546	.267	1.116
	Social class (subjective) (2)	-.329	.354	.864	1	.353	.719	.359	1.441
	Social class (subjective) (3)	-.732	.353	4.304	1	.038	.481	.241	.960
	Social class (subjective) (4)	.256	.350	.533	1	.465	1.291	.650	2.565
	Constant	-1.434	.370	15.046	1	<.001	.238		

a. Variable(s) entered on step 1: Ethnic group, How many children do you have, Employment status, Social class (subjective).