

Some Factors Impacting on Street Sellers' Ability to Generate Above Poverty Line Income in Vhembe District, South Africa: Logistic Regression Approach

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ABSTRACT This study assesses factors impacting on the above poverty line income generation by street sellers of perishable and non-perishable products in the Vhembe District, South Africa. Data was randomly collected from street sellers in the four local municipalities of the district using a semi-structured questionnaire and analysed using descriptive and inferential statistical techniques. Tabulated descriptive statistical analyses revealed the dominance of middle aged women street sellers who were moderately educated but minimal youth participation. Categorical variables that were investigated for this study included cost of production, monthly income generated, total monthly profit, annual income, challenges faced by street sellers, lack of business activity, age and gender. Inferential statistical analyses of the variables uncovered that investment in stock purchases, monthly income and profit had positive impacts on generating above poverty line income, while challenges faced by street sellers and business activity had negative impacts. The study recommended for development of increased youth participation strategies, training of participants with low or no educational achievement and provision of basic vending infrastructure.

INTRODUCTION

The increase in world unemployment has driven many people to seek alternative means of earning an income. Over the past few years, the percentage of informal employment in South Africa has grown substantially, forcing the central government to acknowledge the role of the informal economy in providing incomes and employment and street traders as entrepreneurs (Datata 2011). Williams (2014) indicates that as in 2013, informal businesses in South Africa contributed more than 5 percent of the country's GDP. As attested by Bhowmik (2005) the vast majority of the self-employed informal sector workers are street sellers - broadly defined as individuals that offer goods for sale to the public from pavements or other public spaces. Other characteristic features of street sellers are that they usually operate their businesses on mobile push carts or carrying their wares in baskets or on their heads as they move to various locations in search of potential customers. Street sellers face livelihood risks because of the legal, physical, and socio-cultural environment in which they operate. The following paragraphs provide brief challenges in support of the above assertions.

As attested by the DTI (2007) the number of small and informal businesses is the most difficult to estimate in the South African context. The most comprehensive survey of small businesses in the country that was conducted between 2005 and 2007 revealed that about 1.75 million people owned at least one non-VAT (value added tax) business in 2005. However the figure had decreased to about 1.69 million people by 2007, showing a negative growth rate.

Study Objectives

In the quest to discover the extent to which street sellers generate livelihoods from their business activities and survival mechanisms, a wide array of literature was consulted. However none of the literature provided sufficient answers on street sellers' survival strategies that enhance or allow for continuous business activities through generating income that exceeds the poverty line in the context of South Africa, prompting for an in-depth study within one selected district municipality of South Africa, Vhembe, which is located in the Limpopo Province that borders the southern side of Zimbabwe. The central problem of the study was to respond to

the question “What are the factors that impact on street sellers ability to generate income that is above the poverty line of R6288 in the Vhembe District of South Africa.?”

Theoretical Underpinnings and Research Questions

The World Bank¹ defines a poverty line as a minimum income level required to meet basic needs and reflects that any person whose consumption or income is below the poverty line is said to be poor. As in 2011, the annual poverty line for South Africa was R6288². This figure was used as a benchmark for this study. The study sought to address the question as raised by identifying demographic characteristics (age spread, gender, marital status and level of education) of street sellers and unravelling the impact of a number of related variables, that is, cost of production, monthly income generated, monthly profit, challenges faced by the street sellers, business activity, age, and gender of the street sellers. These are factors that the study sought to investigate. The following sections present a review of vending challenges from a global perspective, study methodology, results, conclusions and recommendations.

Just like formal business operators, street sellers are less productive in risky and unstable institutional environments where rules are irregular and unpredictable (Mackie and Bromley 2009). The most pressing and on-going risk for many street sellers is the possibility that local government authorities will forcibly remove them from the streets or confiscate their merchandise. This risk of displacement often increases in response to various events, including elections, mega events or efforts to beautify historic city centres. Other challenges relate to routine occupational hazards as many have to lift and haul heavy loads of goods to and from their point of sale each day as the physical environments in which they work typically lack proper infrastructure, such as clean running water, toilets, and solid waste removal. In addition street sellers are exposed to physical harm from the improper provision of fire safety equipment and regulation of traffic in commercial areas besides being exposed to high concentration of air pollutants and extreme weather conditions. These physical risks take a particular toll on young children

who accompany their mothers to work (Bhowmik 2005).

As noted by Snodgrass and Chen (2001) income and earning risks are common to many street sellers. Specifically, harassment by local authorities – including evictions, confiscation of merchandise and demands for bribes – is a common source of income risk for most street sellers. Snodgrass and Chen (2001) also attest that street sellers of perishable goods are more vulnerable to losses than their non-perishables counterparts. Also, street sellers of seasonal goods are supposed to cope with fluctuations in supply and demand over time. For women street sellers the additional burden of looking after children further worsens their income generating ability. According to Mitullah (2003) the greatest challenge facing street and informal traders relates to operational space and trading rights as their business operations are considered illegal. In cases of formal demarcation, the allocated spaces are usually considered temporary resulting in the threat of being evicted at any time. In addition street sellers are also in conflict with formal shop owners and landlords who accuse them of infringing on their rightful premises. However as noted by Schindler (2014), there is a strong interdependence between big business and small traders. Overall, street vending is regarded as the most regulated and the least protected business activity.

RESEARCH METHODOLOGY

Study Design

The study was conducted in the Vhembe District Municipality (VDM) - the northern-most district of Limpopo province in South Africa. The VDM consists of four local municipalities, that is, Makhado, Thulamela, Musina and Mutale. It shares borders with three Southern African Development Community countries; that is Botswana in the west, Zimbabwe in the north and Mozambique in the east. It covers an area of 21402 square kilometres of land that is mostly rural. A large portion of the VDM falls under the tribal authorities, a factor that negatively impacts on rural development. Due to high level of unemployment and poverty, inhabitants of the district have developed a number of survival strategies, including the vending of fresh produce along the streets of major trading points within

the local municipalities identified above, that is, the towns of Makhado, Thohoyandou, Mutale and Musina respectively. A list of street sellers was obtained from the local economic development division of the VDM. From this list a random sample of about 10 percent of total traders from each cluster was drawn as reflected in Table 1.

Data was randomly collected using a pre-tested semi-structured questionnaire that was administered to the 132 street sellers. Collected data was captured and analysed using the SPSS version 20 computer programme.

The Analytical Model

A logistic regression model that considered poverty line as a dependent variable and costs of production, monthly income generated, total monthly profit, annual income, challenges faced and level of business activity as predictor variables was run as reflected below (Field 2005):

$$P(Y_i) = 1 / (1 + e^{-(b_0 + b_1 COSTP + b_2 INCOG + b_3 TMP + b_4 ANIC + b_5 CHALF + b_6 LACKB + b_7 AGE + b_8 GNDR + \epsilon_i)})$$

Where

$P(Y_i)$ = probability of generating income that exceeds the poverty line by the i^{th} vendor (1 = poverty line exceeded, 0 = poverty line not exceeded), COSTP= Costs of production (Rand amount used in stock purchases), INCOG= Monthly income generated (quantity sold x price), TMP= Total monthly profit (income less business expenses), ANIC= Annual income (in Rands); CHALF= Challenges faced by the street sellers (1= harassment from authorities, 2= Lack of business, 3= harsh environmental conditions, 3= stock theft, 4= spoilages, 5= lack of storage facilities); LACKB = business activity, AGE= Age of the street sellers (1=youth: <35 years, 2=Aged: 35-65 years, 3= >65 years); GNDR= Gender of the street sellers (1=male, 0=female) and ϵ_i = error term.

Logistic regression is a useful tool in estimating individual effects of continuous or categorical independent variables on categorical dependent variables. The model is specifically able to transform independent variables by using the log of the odds ratio of being in a particular category for each combination of values of the independent variables. The main goal of logistic regression is the same as that in ordinary least squares (OLS) regression, that is modelling a dependent variable based on one or more independent variables. Whereas OLS regression is applicable to continuous dependent variables, logistic regression works with dependent variables that are categorical, and thus may have two or more categories. The latter may either be ordered or unordered (Heskeneth and Everitt 2000). Results were diagnosed through the log-likelihood and Wald statistics. The former is a ratio that measures how well a particular model will fit the data (comparing the observed and predicted values of the outcome. As noted by Field (2005), the log-likelihood is similar to the residual sum of squares in multiple regressions. Log-likelihoods of different models can be worked-out by comparing the state of a logistic regression model against a baseline, usually the model that pertained when only the constant was included. The improvement of the model as additional predictors are added is computed using the following equation (Field 2005):

$$X^2 = 2[LL(New) - LL(Baseline)]$$

$$(df = k_{new} - k_{baseline})$$

(Multiplication of the value by 2 produces an X^2 distribution, and k = degrees of freedom).

As the addition of more categorical variables has the effect of decreasing the deviance the Chi-Square test is quite useful in examining the resultant relationship especially with increased levels of categories.

Table 1: Population and sampling of street sellers in the Vhembe district local municipalities, 2013

	Total population spread			Sample		
	Food items	Non-food items	Total	Food items	Non-food items	Total
Thohoyandou	101	239	340	10	24	34
Mutale	130	70	200	13	7	20
Makhado	320	80	400	32	8	40
Musina	223	157	380	22	16	38
Total	684	546	1320	77	55	132

Source: Vhembe District Municipality IDP, 2012

RESULTS AND DISCUSSION

Presentation and Discussion of Results

Descriptive results of this study provided information related to the demographic characteristics of street sellers (see Table 2). The results showed that the majority of the sampled street sellers within the four local municipalities were aged (71.2%) and females (97.7%). While youth participation in vending activities could be vital in reducing unemployment and crime levels, for the VDM study their participation was about a quarter of the total number of street sellers (25.8%). The finding regarding the high participation of the aged (35 to 65 years) partly correspond to that of Dinda (2010) in a Bihar study that reflected similar trends. A study by Alves da Silva et al. (2014) confirmed the dominance of street sellers who were within the above age band (average 40.3 years). This age group was identified as the main productive labour force in the economy as its members were vital in supporting their families.

The dominance of females was also earlier found in a study by Mitullah (2003) for major African cities, although some men also engaged in vending activities. Minimal participation by the male gender was either attributed to perceived preference for hard-labour type jobs or interest in other profitable income generating ventures as compared to street vending. Women on the other hand were reputed for being

more interested in family welfare than profit-making ventures.

The finding of this study, in particular its reflection of the participation of most women is rather encouraging, especially in the South African context where women empowerment receives priority. Moyo (2014) has also reflected on the importance of active participation of women in ventures that target general development. However low youth participation in vending activities is a matter that requires redress, particularly in that South Africa experiences a high proportion of youth unemployment. Also, while almost half of the street sellers were married (50.8%), the proportion of their unmarried counterparts was substantial (37.9%). The dominance of married participants supports the findings of Muzaffar (2009) which revealed similar trends (72% of married street sellers).

Table 2 also shows that most street sellers had attained secondary school education, with a small proportion that never went to school. These results seem to be in contrast to those of Adhikari (2011) which revealed higher proportions of illiterate street sellers in most Kathmandu metropolitan cities. Also a Brazilian study by Alves da Silva (2014) revealed a high proportion of street sellers that had either elementary education or less. According to Adhikari (2011) higher educational achievements are associated with positive effects on income generation, that is, higher levels of education attainment were associated with higher income generation. Spe-

Table 2: Demographic characteristics of street sellers in the Vhembe District Municipality, South Africa

		<i>Thohoyandou</i>	<i>Makhado</i>	<i>Mutale</i>	<i>Musina</i>	<i>Total</i>
<i>Age Spread (% of Total)</i>						
Youth: <35	% of Total	9.8%	2.3%	0.8%	12.9%	25.8%
Aged: 35-65	% of Total	15.2%	27.3%	12.9%	15.9%	71.2%
Elderly: >65	% of Total	0.8%	0.8%	1.5%	0.0%	3.0%
<i>Gender (% of Total)</i>						
Male	% of Total	3.0%	1.5%	0.8%	3.0%	8.3%
Female	% of Total	22.7%	28.8%	14.4%	25.8%	91.7%
<i>Marital Status (% of Total)</i>						
Single	% of Total	8.3%	9.8%	5.3%	14.4%	37.9%
Married	% of Total	14.4%	15.9%	9.8%	10.6%	50.8%
Living together	% of Total	0.0%	0.8%	0.0%	0.0%	0.8%
Widowed	% of Total	3.0%	3.8%	0.0%	3.8%	10.6%
<i>Level of Education Attained</i>						
No Schooling	% of Total	3.8%	0.8%	0.8%	4.5%	9.8%
Primary (Grade 1-7)	% of Total	4.5%	12.9%	4.5%	7.6%	29.5%
Secondary (Grade 8-12)	% of Total	15.2%	16.7%	8.3%	16.7%	56.8%
Tertiary	% of Total	2.3%	0.0%	1.5%	0.0%	3.8%

n=132

cifically, educated individuals were not only better placed to deal with customers but also identified appropriate markets with relative ease. Moderate educational achievements by VDM street sellers therefore translates into ease of training and thus improvement in managing their business ventures as the former could inspire new innovative ideas such as quicker adoption of useful technologies. However the finding that almost one in every ten street sellers had not attended formal schooling calls for concerted efforts at providing remedial educational opportunities to the affected street sellers through the Adult Based Education and Training programme initiated by the South African Department of Basic Education.

Production costs (COSTP) were found to be significant at the 1 percent level. The positive relationship with regard to whether the income generated exceeds the national poverty line of R6288 means that the higher the investment on stock purchases, the more likely that street sellers will live above the national poverty line. A significant relationship for monthly income (INCOG) was also found at the 1 percent level of significance. The relationship denotes that the higher the monthly income, the more likely for street sellers to live above the national poverty line. The study also uncovered a significant relationship for monthly profit (TMP) at the 1 percent level of significance, implying that higher monthly profits were more likelihood to advance street sellers above the poverty line.

Challenges faced (CHALF) by the street sellers were found to be significant but negative at the 10 percent level. The implication therefore was that increased challenges faced by street sellers were very likely to generate less income

and therefore reduced livelihoods. The level of business activity (LACKB) was also found to be negative but highly significant at 1 percent level. This result was expected as lower business activities usually result in lower income generation. Age and gender were found to be insignificant contributors to achieving an income above the poverty line.

CONCLUSION

This study was conducted in the Vhembe District Municipality of South Africa –located at the northern most part of the country and bordering Zimbabwe in the north that comprises four local municipalities. Random samples of street sellers were drawn from the major trading points of each local municipality. Data were collected through a pre-tested questionnaire and analysed through descriptive and inferential statistical techniques to answer the overriding problem of the study, that is, the factors that determine the generation of income that could be beyond the annual poverty line of R6288 by street sellers in the Vhembe District Municipality in their quest to generate essential poverty reduction livelihoods. The problem was to be addressed through identification of demographic characteristics of street sellers and unravelling related variables, that is, cost of production, monthly income generated, monthly profit, challenges faced by the street sellers, business activity, age, and gender respondents through descriptive analyses and application of a logistic regression model. Descriptive statistical results reflected the dominance of aged female street sellers with minimal youth participation. Other demographic characteristics of street sell-

Table 3: Parameter estimates of the binary logistic regression model

<i>Variables</i>	<i>B</i>	<i>Std error</i>	<i>Wald</i>	<i>Significance</i>	<i>EXP (B)</i>
COSTP	0.348***	3.846	4.765	0.003	0.950
INCOG	0.256***	1.724	6.134	0.000	0.060
TMP	1.731***	0.364	9.436	0.000	0.800
CHALF	-0.418*	0.000	0.761	0.052	0.026
GNDR	-0.223	0.830	0.073	0.788	0.800
AGE	0.011	0.014	0.635	0.425	1.012
LACKB	-1.280***	1.052	3.645	0.002	0.050
Constant	1.564***	3.476	15.608	0.003	176.698

n=132

*Significant at 10% level, *** significant at 1% level. Hosmer and Lemeshow Test: $\chi^2 = 51.351$; $df = 6$, Cox & Snell R Square = 0.0334, Nagelkerke R² = 0.725. Where: COSTP= Costs of production (amount used in stock purchases); INCOG= Monthly income generated (quantity sold X price); TMP= Total monthly profit; CHALF= Challenges faced by the street sellers; LACKB= Low business activity

ers within VDM included the dominance of married participants with moderate educational achievements. However a reasonable number of street sellers had never attended school. The analytical model postulated three highly significant and positive variables to achievement of above poverty line income, that is, cost of production (purchases), monthly income generated and total monthly profits. Two variables were negative but significant contributors to above poverty line income generation, that is, level of business activity (highly significant) and challenges faced.

RECOMMENDATIONS

Based on the above findings the study advances the following recommendations:

- ♦ The dominance of aged female street sellers (35 to 65 years) is highly appreciated especially in the South African context with its biasedness towards women empowerment. Despite their majority in terms of population spread, women are still being marginalised in economic activities, including the holding of critical positions in public and private organisations.
- ♦ The observation that only one in every four street sellers is a youth could be reflective of high youth unemployment and lack of participation in the non-formal sector of the South African economy. In the absence of formal job opportunities, vending provides the next best alternative for South African youth, requiring that strategies to encourage increased participation be initiated, including campaigns that would target youth at places where they are usually found, such as educational institutions, youth gatherings and religious institutions. Such campaigns need to outline the critical role that small businesses play in economic development and strategies available for meaningful participation.
- ♦ While the moderate educational achievement is also a desirable outcome, especially in promoting active participation for training and other knowledge enhancing activities, the few street sellers that are completely illiterate need to be exposed to adult basic education opportunities that have been initiated by the South African government

so as to upscale their level of understating the business environment.

- ♦ Regression modelling results that depict positive associations between the generation of above poverty line income and monthly profits further consolidate the potential of vending as a livelihood generation strategy. However as the positive outcomes are marred by challenges, it will be imperative for authorities to provide conducive environments for business advancement such as provision of shelter and reduction of counter socio-economic developmental agendas (electioneering etc.).
- ♦ Another challenge that can perhaps need further analyses is the impact of storage facilities on the performance of street sellers. This is particularly critical for participants in this study as most were observed to leave behind plastic or cardboard covering perishable products in open areas after normal business activities. While such an action could be conducive to attracting thieves, the impact on health safety could also be catastrophic.

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NOTES

- ¹ <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPA/0,,contentMDK:22397595~pagePK:210058~pi PK:210062~theSite PK:430367,00.html>
- ² <http://www.npconline.co.za/pebble.asp?relid=123>

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