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Economic Impact of Non-Governmental Organisations in Improving the Well-being of Vulnerable Orphaned Children in Soweto

By

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Abstract

Extended households have always provided a safety net for orphaned children. However, the high rate of HIV (AIDS) infection, unemployment and poverty has weakened their capacity to fulfil this vital role. Most of the extended households with orphan-care responsibilities are forced to subsist under poor socio-economic conditions and depend on government social grants for their material survival. Consequently, the majority of extended households live in poverty and therefore lack sufficient resources to care for these children.

In addition to receiving government social grants, some extended households are also receiving financial and non-financial assistance from local non-governmental organisations (NGOs). These local NGOs play an important role in strengthening the these households — which, as mentioned, provide a refuge to orphaned children — by providing basic needs such as food, clothes and medical care to orphans living in extended family units. However, despite this significant role of local NGOs, little has been done to quantify their economic impact. It is against this background that this mini-dissertation strives to bridge this gap by investigating the economic impact of NGOs in improving the well-being of vulnerable orphaned children living in these extended households of Soweto.

Methodologically, this mini-dissertation employs the Foster, Greer and Thorbecke (FGT) poverty indices (1984), in order to assess the impact of NGOs' help in reducing the level and the depth of poverty in poor households living with orphaned children. We used the Kruskal-Wallis (1952) non-parametric test to test whether the help of NGOs was significant in reducing the level and the depth of poverty in these homes.

In the second approach, we use the logit econometric model to control for variables that may affect the probability of an orphaned child to be poor.

Before we analysed the results of the FGT poverty indices and the logit econometric model, we started by analysing the demographic profile of all households who participated in this study in order to have knowledge of the prevailing socio-economic conditions of these households. We further compared the income of each household in

the sample to the minimum income required not to be deemed poor in order to establish whether these households have enough income to survive materially.

From the analysis of the demographic profile, we found that the majority of orphaned children are living in households headed by unmarried females who have a Matric as their highest level of education. Most of these household heads are unemployed and depend on government social grants for their existence. Moreover, we found that the majority of households caring for orphaned children don't have enough income to meet the minimum level of well-being required not to be deemed poor. Most of the extended households are resource-constrained and are struggling to care for orphaned children in terms of meeting their basic needs.

Armed with this knowledge, we then used the FGT poverty indices and the logit econometric model to assess the impact of NGOs' help in reducing the level and depth of poverty in poor households living with orphaned children. From the analysis of the FGT poverty indices, we found that the help of NGOs was significant in reducing the level of poverty in such dwellings.

These results suggest that NGOs are efficient in terms of identifying, and thus aiding, orphaned children in poor households. Secondly, the help of NGOs was significant in reducing the extent of poverty in these poor households. Although some households remained poor after receiving the assistance from the NGOs, these households would be living in far more severe poverty without the NGOs' assistance.

The results of FGT poverty indices are consistent with those of the logit econometric model. Using the logit model, we found that the help of NGOs was statistically significant in reducing the level of poverty.

This mini-dissertation makes the following policy recommendations:

1. Empirical results shows that employment income is the second largest source of income in poor households, is therefore important for the government to develop employment programmes aimed at employing the caregivers of extended household.

2. Although child-headed households constitute small percentage as compared to households headed by old persons, government need to employ caregivers in child-headed households.



Contents

<u>Acknowledgements</u>	i
<u>Abstract</u>	ii
Chapter 1: Introduction and Aim of the Study	
<u>1.1 Background</u>	1
<u>1.2 The goal of the study</u>	2
<u>1.3 Contribution of the study</u>	3
<u>1.4 Methodology</u>	4
<u>1.5 The structure of the study</u>	4
Chapter 2: Literature Review	
<u>2.1 Introduction</u>	5
<u>2.2 Literature on the consequences of being an orphan</u>	6
<u>2.3 Literature on the methods of caring for orphaned children</u>	7
<u>2.3.1. The role of extended households in caring for orphans</u>	8
<u>2.3.2. Government intervention in caring for vulnerable orphaned children</u>	9
<u>2.3.3 NGOs' intervention in caring for orphans</u>	10
<u>2.4 Conclusion</u>	10
Chapter 3: Research Methodology	
<u>3.1 Introduction</u>	12
<u>3.2 Research area</u>	13
<u>3.3 Sampling</u>	14
<u>3.3.1 Sampling of NGOs</u>	14
<u>3.3.2 Sampling of households across the NGOs</u>	15
<u>3.4 Collection of the data</u>	16
<u>3.5 Analysing the data</u>	17

<u>3.5.1 Determining and measuring the poverty line</u>	17
<u>3.5.2 Research approaches</u>	18
<u>3.5.2.1 Foster, Greer and Thobercke poverty indices</u>	18
<u>3.5.2.2 The logit econometric model</u>	20
<u>3.6 Conclusion</u>	22
Chapter 4: Analysis of the Results	
<u>4.1 Introduction</u>	24
<u>4.2 Demographic profile</u>	24
<u>4.3 Analysis of household income</u>	26
<u>4.4 Foster, Greer and Thobercke poverty indices</u>	30
<u>4.4.1 The impact of NGOs' help in decreasing poverty incidence (level of poverty)</u>	30
<u>4.4.2 The impact of NGOs' help in closing the poverty gap (depth of poverty)</u>	33
<u>4.5 The results of a logit econometric model</u>	35
<u>4.5.1 Variables used and their expected signs</u>	35
<u>4.5.2 Diagnostic tests</u>	37
<u>4.5.3 The results</u>	37
<u>4.5 Conclusion</u>	39
Chapter 5: Conclusion	
<u>5.1 Summary of the study</u>	41
<u>5.2. Policy recommendations and future research</u>	46
<u>5.3 Limitations of the study</u>	47
List of References	49
Appendix A: The Survey Instrument	54
Appendix B: List of NGOs in the City of Johannesburg	59

List of Tables

Table 3.1: Sub-township in Soweto.....	13
Table 4.1: Gender of household heads taking care of orphans.....	24
Table 4.2: Age distribution of household heads.....	25
Table 4.3: Marital status of household heads.....	26
Table 4.4: Households per capita income per month.....	27
Table 4.5: Poverty incidence excluding and including NGOs' help.....	30
Table 4.6: Kruskal-Wallis equality of population rank test.....	31
Table 4.7: Poverty gap excluding and including NGOs' help.....	33
Table 4.8: Kruskal-Wallis equality of population rank test.....	34
Table 4.9: Logit econometric model.....	38

List of Figures

Figure 4.1: Average contribution of different sources of household income.....	29
Figure 4.2: Kernel density function of a log of household expenditure excluding and including NGOs' help.....	32

List of Acronyms

FGT	Foster, Greer and Thorbecke
HIV	Human Immune Virus
NGO	Non-Governmental Organisations
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development

Chapter 1

Introduction and Aim of the Study

1.1 Background

The number of children becoming orphans, and hence vulnerable, has increased in South Africa (UNICEF, 2003). The number of orphaned children has been raised from 4 million in 2005 to 5 million in 2007 (UNICEF, 2008). One dominant factor contributing to the increasing number of orphans in South Africa is the high prevalence of HIV/AIDS. Clover, Gardner and Operario (2009) estimated that about 2.2 million children were orphaned by HIV/AIDS in 2007 and this number was expected to increase to 5.2 million in 2015.

The majority of orphaned children live in extended households, usually with an elder person who assumes the responsibility of being a caregiver. In 1998, about two-thirds of orphaned children in South Africa were living in extended households (Foster, 2000). Given the high level of poverty and unemployment in South Africa, most of these households with orphan-care responsibilities live in poverty (Booyesen, 2005).

These findings are also consistent with studies done in Africa. For example, in 2002, Miller, Griskin, Rajaraman and Heymann (2006) found that the extended households caring for vulnerable orphans in Botswana had a mean income of R 2772 (US\$ 396) per month with average of 5,68 persons per household. This translates into less than US\$ 2 Purchasing Power Parity per capita per day. Nyambedha, Wandibba and Hansen (2003) also found that these caregivers in Western Kenya had difficulties in caring for orphaned children in terms of the provision of food, clothes and medical care.

The high prevalence of poverty, unemployment and HIV/AIDS has weakened the role of the extended household model in terms of providing a safe haven for orphaned children, and has also impacted negatively on their ability to reduce poverty amongst the orphaned child populace. As a result, the majority of orphaned children living in extended households lack basic needs such as food, clothes and medical care, rendering them vulnerable to poverty. There is also extensive evidence in the literature

showing that orphaned children — who are then rendered vulnerable due to their high susceptibility to abject poverty — have high rates of school dropouts, anxiety and depression (Clover and Gardner, 2006; Case, Paxson and Ableidinger, 2004). For example, Clover and Gardner (2006) found that children orphaned by AIDS in Cape Town had a higher rate of school dropouts, anxiety and depression than non-orphaned children.

International agencies — such as the United Nations Children Fund (UNICEF) and the United States Agency for International Development (USAID) — are funding developing countries in order to help them cope with the increasing number of orphaned, and thus vulnerable, children. For example, between 2003 and 2012, the United States Agency for International Development had given more than US\$ 2 billion in order to support vulnerable orphaned children in sub-Saharan African countries (USAID, 2013).

These funds are channeled through local non-governmental organisations (NGOs) that identify, and provide support to, extended households living with vulnerable orphaned children in local communities. The finance is used by local NGOs to provide support to them in terms of meeting sustenance requirements, paying school fees and attending to psychological needs. In addition, the NGOs also raise money for these households by procuring funding from both private and public entities. These local NGOs are thus able to provide food, medical care and clothing to orphans living in these homes.

1.2 The goal of the study

The purpose of this study is to investigate the economic impact made by local NGOs involved in helping extended households inhabited by vulnerable orphaned children. Specifically, this study will measure whether the help received from local NGOs improves the well-being of these children in terms of enhancing the livelihood of the primary caregivers through funding and supplying provision, thereby helping them.

The capacity of the extended household, a preferred traditional model for caring for orphaned children, to provide a refuge to these children has been weakened by high rates of poverty and HIV/AIDS. This research strives to shed some light on the role of

NGOs in strengthening the extended household's role in providing a safety net to these orphans, and hence improve the well-being of those living there. This will be done by quantifying the significance of NGOs' help in reducing the level and the depth of poverty in households with orphan-care responsibilities.

1.3 Contribution of the study

Little is known about the economic impact of services provided by local NGOs to extended households caring for orphaned children. An improved understanding of the economic impact of local NGOs can inform the policies of international agencies and improve the coordination between these agencies and local NGOs. Moreover, since some NGOs receive funding from government and private companies, this will guide these companies' policies in working with NGOs.

There is little, if any, literature quantifying the economic impact of South African NGOs that are involved in helping the extended households care for orphans. Most literature concentrates on the efficiency of and barriers faced by the NGOs. For example, Kironde and Nasalo (2002) investigated barriers faced by the NGOs that are involved in combating tuberculosis in South Africa; while Kelly, Somlai, Benotsch, Gamirkhanian, Fernandes, Stevenson, Sitzler, Mcauliffe and Opegenorth (2006) investigated the programs, resources and needs of South African NGOs that are involved in HIV/AIDS prevention. But none of the studies in the literature quantifies the economic impact of South African NGOs that are involved in helping extended households care for orphans.

Although the importance of the NGOs is acknowledged in the literature, little has been done to appraise their economic impact. For example, Foster (2002) acknowledged the role played by South African NGOs, but failed to quantify the economic impact of these NGOs. Roby and Shaw (2008) showed that in Uganda the need for basic needs decreases after households have received the services of NGOs, but failed to evaluate the significance of this help from them, in terms of aiding extended households.

The purpose of this study is to bridge this knowledge gap by investigating the economic impact of NGOs in improving the well-being of vulnerable orphaned children living in extended households.

1.4 Methodology

Methodologically, this study applies the Foster, Greer and Thorbecke (FGT) poverty indices (1984) in order to assess the impact of NGOs' help in reducing the level and the extent of poverty in poor households living with orphaned children. Secondly, the logit econometric model is used to account for other variables that affect the probability of an orphaned child being poor, and also to evaluate the significance of NGOs' assistance in reducing the level of poverty in poor households housing orphaned children. The choice of variables used in the logit econometric model follows those used by Bogale, Hagedorn and Korf (2005), as well as Bhatta and Sharma (2006). Since this study is about quantifying the aid provided by NGOs, the help from NGOs was added as a variable of interest.

From this knowledge problem, the research question is: Do the services provided by NGOs significantly improve the per capita expenditure of the extended households caring for orphans?

1.5 The structure of the study

This dissertation is structured as follows. Chapter 2 presents the literature on the consequences of orphanhood on the well-being of children in order to form an understanding of the socio-economic conditions of these children. The chapter is concluded by reviewing the literature on the approaches of improving the well-being of vulnerable orphaned children. The profile of the research area, sampling and the research methodology are presented in chapter 3. Chapter 4 presents the analysis of the results and chapter 5 concludes the study.

Chapter 2

Literature Review

2.1 Introduction

The high rate of child poverty in South Africa has precipitated and necessitated significant investigation be undertaken by both policy makers and academics. The empirical investigation has led to a growing consensus that child poverty is remarkable high in South Africa. In 2005, about 60% of South African children, when ranked according to the income of their households, were living in the bottom 40% (Streak, 2005). In 2000, Dieden and Gustafson (2003) confirmed that child poverty was high in South Africa and more dominant in rural areas compared to urban areas. More recently, in 2007, a report by UNICEF (2008) reinforced the prevalence of this epidemic, asserting that child poverty was still persistently high in South Africa.

There is also extensive evidence in the literature arguing that child poverty is higher than adult poverty in South Africa. Streak, Yu and Van der Berg (2009) found that child poverty was at 66.5% compared to the 45.1% of adult poverty in 2005. These results are also consistent with studies done in sub-Saharan Africa. A report by UNICEF (2003) found that child poverty was higher than adult poverty in sub-Saharan African countries in 2001.

The high level of child poverty in South Africa and sub-Saharan Africa is dominantly caused by the increasing number of orphaned and vulnerable children (UNICEF, 2003). sub-Saharan Africa has the highest number of orphaned children in the world. In 2001, there were about 18 million orphaned children in sub-Saharan (UNICEF, 2003). Given the high level of poverty, unemployment and HIV/AIDS in South Africa and sub-Saharan African countries, most of the orphaned children are deprived of basic needs such as food, access to health care facilities and good quality education. Deprivation of these basic needs has a detrimental effect on the well-being of orphaned children.

The purpose of this chapter is to outline the literature on the consequences of orphanhood on the well-being of children in order to gain knowledge of social and

economic conditions under which they live. The chapter is concluded by reviewing the literature on approaches to improving the well-being of vulnerable orphaned children.

Before proceeding, it is important to clarify whom this research is conducted on. In this study, and in the literature used, an orphaned child is defined as a person under the age of 18 years who has lost one or both parents. Secondly, although the acknowledgement is given to the multidimensional approach in measuring orphan poverty; for the purpose of this study, orphan poverty is measured by the per capita income/expenditure of the extended households living with these children.

This rest of this chapter is structured as follows. In Section 2.2, the literature on the consequences of orphanhood on the well-being of children is discussed. Section 2.3 provides the literature on the approaches of improving the well-being of these vulnerable children in order to reduce orphan poverty. The final section (2.4) concludes the chapter.

2.2 Literature that addresses the consequences of being an orphan

The first instant consequence of being an orphan is that orphaned children suffer from a high rate of depression as a result of losing one or both parents. Clover, Gardner and Operario (2009), using a socio-demographic questionnaire, found that the orphaned children in urban areas of Cape Town were more likely to report symptoms of depression, anxiety and post-traumatic stress as opposed to non-orphaned children. Studies, such as those by Bhargava (2005) and Pelton and Forehand (2005), also found that orphaned children exhibit significant depression.

With respect to education, Case, Paxson and Ableidinger (2004) investigated the school enrollment numbers of orphaned children in 10 sub-Saharan African countries using demographic and health survey data. They found that orphaned children are significantly less likely to enroll in school compared to non-orphaned children. In addition, Case and Ardington (2006), using longitudinal data from a demographic surveillance area in Kwazulu-Natal, found that orphaned children have poor school outcomes, compared to non-orphaned children. There is also evidence of high rates of

orphaned children dropping out of school. This phenomenon is mainly caused by a need to care for their siblings. These findings are also consistent with studies done in sub-Saharan Africa.

Poor health and malnutrition are other problems faced by orphaned children as a result of lacking basic needs. Andrew, Skinner and Zuma (2006) found that orphaned children in sub-Saharan Africa have poor health compared to children with parents.

High rates of depression, accompanied by lower levels of school attendance, poor health and the deficit in basic needs all have a negative impact on the well-being of orphaned children. Therefore, it is not surprising that the poverty rate among orphaned children is higher than non-orphaned children as these are all symptoms of poverty.

Poverty among orphaned children is more likely to generate intergenerational poverty persistence. This means that poor children are more likely to be poor in adulthood as well. Studies, such as those conducted by Yaqub (2002), have shown that early childhood poverty can generate intergenerational poverty persistence.

There are different approaches to improving the well-being of orphaned children. The section that follows reviews the literature on the methods of caring for orphaned children in order to improve their well-being.

2.3 Literature on the methods of caring for orphaned children

In the literature, there are three different methods of caring for these parentless vulnerable children. The first method in caring for them is through the extended households that provide accommodation and care for them. The second method is through government intervention in the form of cash transfers, such as foster care grants, with the intention of assisting the extended households in caring for such children. The third method, which is the focus of this study, is through local NGOs that assist extended households in caring for vulnerable orphaned children.

2.3.1. The role of extended households in caring for orphans

In the first approach, the role of extended households in providing a refuge for vulnerable orphaned children, and in reducing child poverty, has received an extensive amount of attention in the literature (Foster, 2000; Booyesen, 2005 and Beard, 2005). The findings assert that extended households, as safety net for orphaned children, is mostly preferred as an efficient model of care compared to institutional care or orphanages (Foster, 2000). This is because children are raised within the family and form part of a large society. For example, Foster (2002) argues that extended family units ensure that children are taken care of because household members help each other socially, economically and emotionally. This argument is also supported by Beard (2005), who advocated the efficacy of the extended household model because children are kept in the family environment.

Although the extended household model is preferred to institutional care or orphanages, it is not without shortcomings. The extended households have, in many cases, been overburdened by the high prevalence of HIV/AIDS and poverty, compromising their care-taking and provision roles, and thus had a negative effect on their ability to reduce child poverty. Caregivers are often infected with HIV/AIDS themselves, making older orphans forced to take on the role of caregivers to young orphans.

Ntozi, Ahombisibwe, Ayiga and Okurut (1999) substantiate the above in their findings that orphan care, in some extended households, is given by older orphans, making the extended household's members vulnerable in terms of securing basic needs. These households are known as 'child-headed households' in the literature. There is also evidence that orphan care is being given by grandparents who have even less capability of taking care of orphans. This is supported by Nyambedha, Wandibba and Hansen (2003), who found that grandparents taking care of orphans face difficulties in terms of providing food, paying for school expenses and medicine. As a result, most orphans leave school to find work in order to supplement their family income. Therefore, although the extended household approach is preferred to institutional care, the high

prevalence of poverty and HIV/AIDS has weakened the role of the extended households being the primary recourse to having orphans' basic needs satisfied.

2.3.2. Government intervention in caring for vulnerable orphaned children

In the second approach, governments have responded to the high level of orphaned children through cash transfers. In South Africa, the government introduced foster care grants in an attempt to improve the well-being of orphaned children living in extended households. The foster care grant is a social transfer made by the government to the caregivers of orphaned children.

The effectiveness of social grants in improving the well-being of orphaned children has received wide empirical investigation. Case, Hosegood and Lund (2005) evaluated the impact of social grants on school enrollment in the KwaZulu-Natal province. They found that children who received social grants were more likely to enroll in school than those who did not. Booysen (2005) also found that social grants reduce the severity of poverty in extended households affected by HIV/AIDS in South Africa.

In order to assess the impact of social grants in improving the well-being of orphaned children, one needs to calculate the per capita income of the households receiving the grants. Since orphan poverty is measured in terms of these households' income/expenditure, if the per capita income of them is pushed above a threshold poverty line after they have received the grants, then social grants play an important role in mitigating orphan poverty. However, in the literature, the social grants were found only to push household per capita income close to the poverty line and not above the poverty line. Thus, social grants reduce the poverty gap, that is, the difference between the income of the poor and the poverty line. Oni, Obi, Okne, Thabede and Jordann (2002), found that social grants were the main source of income for extended households affected by HIV/AIDS. However, the extended households' per capita income was not lifted above the threshold poverty line. Similar results were found by Booysen (2005), who argues that extended households affected by HIV/AIDS were more dependent on social grants. But these extended households were still living in

poverty even after they had received the grants: the per capita income of the extended household is not pushed above the threshold poverty line.

Although the government plays an important role in helping the extended households care for orphaned children through social grants, and in reducing orphan poverty, the per capita income of the extended households is generally not pushed above the poverty line as a result of these grants.

2.3.3 NGOs' interventions in caring for orphans

In the third method, community based groups such as NGOs evolved from the need of helping extended households caring for orphans in terms of food, medical care and school expenses. These NGOs evolved because: HIV/AIDS had weakened the role of the extended households as a safety net for caring for orphaned children; and, because of government assistance, in the form of foster care grants, not being capable of boosting extended households' income levels above the threshold poverty line. In addition to receiving government foster care grants, some extended households are receiving assistance from local NGOs.

There is less literature, if any, investigating the economic role of local NGOs providing help to extended households caring for orphans. This study strives to close this knowledge gap by investigating the economic role of these NGOs.

2.4 Conclusion

There is an extensive amount of literature showing that child poverty is high in South Africa. This high level of child poverty is mainly caused by an increase in the number of children becoming orphans due to HIV/AIDS. Orphaned children often have high rates of school dropout, suffer more from depression and are more vulnerable to poverty compared to parented children. Therefore, the well-being of children who become orphans is more likely to decrease.

It has been shown that extended households, as a safety net for orphan children, have been weakened in their ability to succeed in performing their role by the high prevalence of poverty and HIV/AIDS. Secondly, government intervention, in the form of foster care grants, does not push extended households' per capita income above the threshold poverty line. Therefore, orphaned children living in these extended households are vulnerable to poverty.

The local NGOs evolved with the intention of helping extended households care for orphans. However, little is known about the economic role of these NGOs in reducing child poverty. This study strives to investigate the economic role of these NGOs.



Chapter 3

Research Methodology

3.1 Introduction

This chapter outlines the research methodology that was used in this study. The objective of this study is to investigate the economic impact of NGOs in improving the well-being of vulnerable orphaned children living in extended households. Since the well-being of these children is measured at the household's sustenance level, the objective of this study will be achieved by assessing the impact of NGOs' help in reducing the level and depth of poverty in such households.

Methodologically, two approaches were used to quantify the impact of NGOs' help. In the first approach, the help provided by the NGOs was treated as an exogenous household expenditure, and Forster, Greer and Thorbercke's (FGT) poverty indices were then applied to assess the impact of NGOs' assistance in reducing the level and depth of poverty. The FGT poverty indices were calculated for household expenditure defined as exclusive and inclusive of NGOs' help. The comparison of FGT poverty indices for household expenditure exclusive and inclusive of NGOs' help makes it easy to assess the impact of NGOs' help in reducing the level and extent of poverty in the extended households. The Kruskal-Wallis (1952) non-parametric test was then used to test whether the help of NGOs is significant in reducing the level and depth of poverty.

In the second approach, other variables that affect the probability of an orphan child being poor were accounted for by applying the logit econometric model. The logit econometric model was used because the dependent variable is a binary/dichotomous variable. The choice of the variables in the logit econometric model follows those used by Bogale, Hagedorn and Korf (2005) as well as Bhatta and Sharma (2006). Since the aim of the study is to assess the economic impact of NGOs, the help of NGOs was added as a variable of interest. Although the variables used in this study are those widely used in the literature, we tested for model specification using the link test. The results of the link test confirm that the model was correctly specified.

Before discussing the methodology in detail, it is important to discuss the following: the selection and profile of the research area, the sampling method used as well as the collection and cleaning of the data.

The rest of this chapter is therefore organised as follows. In section 3.2, the selection and profile of the research area is discussed. Section 3.3 outlines the sampling method that was used to select the representative sample. In section 3.4 and 3.5, the collection of the data and methodology used to carry out the data analysis are discussed, respectively.

3.2 Research area

The study was conducted in Soweto. Soweto was selected because it has more NGOs than any other urban township in the City of Johannesburg. The Department of Social Development's (DSD) database shows that there were 140 registered NGOs in Soweto in 2013.

It should not be surprising that Soweto has more NGOs than any other urban township in Johannesburg. According to Statistics South Africa (2012), Soweto is the biggest urban township in South Africa with an estimated population of 1.6 million people. Soweto is divided into 18 sub-townships. Each sub-township is further divided into extensions. Table 1 gives the names of the sub-townships in Soweto.

Table 1: Sub-townships in Soweto:

Diepkloof
Orlando East
Orlando West
Meadowlands
Chiawelo
Protea Glen
Pimville
Molopo

Moroka
Zola
Mofolo
Naledi
Mapetla
Phiri
Rockville
Jabulani
Dobsonville
Dhlamini

Source: Statistics South Africa (2012)

The level of poverty is still remarkably high in Soweto. Mears (2012) estimated that the mean household income per month in Soweto was R6500 in 2008. Using the minimum living levels (MLLs) of R1023, R1261, R1635, R1998 and R2786 for the first, second, third, fourth and fifth quintiles, respectively; Mears (2012) found that about 40% of the population in Soweto lived on income below their MLLs. Although this is low compared to other urban townships in South Africa, is high by emerging markets standards. Since children are over-represented in poor households, it is more likely that child poverty is also high in Soweto. Given the number of NGOs and the level of poverty, Soweto is an appropriate area to investigate the impact of NGOs on improving the well-being of vulnerable orphaned children living in extended households.

3.3 Sampling

3.3.1 Sampling of NGOs

There are 140 registered NGOs in Soweto in the Department of Social Development (DSD) database. However, not all the NGOs in the DSD database meet the criteria to be included in this study. For the purpose of this study, the NGOs that provide help to

the extended households living with at least one or more orphaned children meet the criteria to be included in this study.

The NGOs that meet the criteria to be included in this study were identified with the help of the Gauteng Department of Social Development (GDSD). There are 39 NGOs in the City of Johannesburg that meet the criteria to be part of this study. From the 39 NGOs identified, 13 are in Soweto, making Soweto an urban township that has more NGOs than any other urban township in the City of Johannesburg, thus meeting the criteria to be part of this study. Since there are only 13 NGOs in Soweto, all the NGOs were included in this study.

3.3.2 Sampling of households across the NGOs

The households within each NGO were pulled together and a systematic random sampling method was used to select the representative sample of households. This was done by asking each NGO to give the stand number of households they help. All the households from each NGO were put together in a list. Using the list, the sample was then selected by using an interval of 2. The interval of 2 was used because a sample of 50 percent from the population was targeted.

After aggregating the households across all the NGOs, the total number of households was 406. This was the research population from which the sample was drawn. Therefore, using a systematic random sampling method, 203 households were selected to be sampled. This constituted 50 percent of the research population. From 203 households, only 119 were successfully interviewed. This is because some households were not available during the interviews and others refused to participate in the study.

After screening all the survey instruments, 51 households out of 119 were dropped. This is because orphans who are living in these households were older than 18 years of age. Therefore the total number of households used in this study is 68. This constitutes 32 percent of the targeted sample and 17 percent of the research population. Although this is a small sample, statistically, a researcher needs only 30 observations to do a

statistical analysis. In this study, we have 68 observations. Moreover, this is the only data available on households living with orphaned children.

The surveys were conducted with the help of one third year and one Honours student from the University of Johannesburg who were fluent in Zulu. This was an advantage since the majority of people in Soweto are Zulu-speaking. The students were given training and the objective of the study was made clear to them before the field work commenced.

3.4 Collection of the data

The data was collected through interviewing the sampled households. A structured survey questionnaire was designed and ethical clearance was obtained from the Faculty of Economic and Financial Sciences at the University of Johannesburg. The questionnaire is attached (see Appendix A). In order to get the correct information, the heads of the households were interviewed. In cases where the head of a household was not available, the oldest available member of the household was interviewed.

When defining a household, this study follows the definition of Mutangdura and Webb (1998:49) who define a household “as an economic unit consisting of a group of people living in the same dwelling and who dine together for at least 3 to 12 months in a year”. Therefore members of the households who reside in a different place were not included as household members. Also, the members of the household who reside in the same yard of the origin household, but who don't dine with the household members were also not included as household members.

Information about the household expenditure and income per month in current prices, the household size, as well as the age, gender and the level of education of the head of the household was collected. Since the aim of the study is to assess the economic impact of the NGOs, the questionnaire contained questions about the help provided by the NGOs to households. This included: the value of food parcels, in current prices, provided by NGOs; the money given to households; school fees paid by NGOs; and any other help such households received from these NGOs.

The surveys were conducted from July 2014 until August 2014. Screening of the questionnaires and capturing of a data took place during September 2014.

3.5 Analysing the data

3.5.1 Determining and measuring the poverty line

The research approaches used in this study require a specification and measurement of a poverty line. In South Africa, like many other developing countries, there is no official poverty line, but different departmental definitions (Gumedde, 2008). For example, currently, the Department of Social Development uses R593 per capita per month as a threshold poverty line. The Gauteng Provincial Government used the minimum living standard provided by the Business Intelligence Division of Global Insight. Tregenna (2011) used the South Africa Revenue Service's (SARS) poverty line of R450 per capita per month in 2000 prices when analysing the distributional implications of halving poverty in South Africa. Blaauw, Viljoen and Schenck (2011) used the South Africa Revenue Service's (SARS) poverty line of R517 per capita per month, according to 2000 prices, when determining the level of poverty in child-headed households. Some studies use the World Bank poverty line of \$2 per person per day. For example, Hoogeveen and Ozler (2005) used a World Bank poverty line of \$2 per capita per day, and found that the poverty headcount ratio remained at about 58% between 1995 and 2000.

Developing countries also rely on their own measures of a poverty line. For example, when determining the poverty line in Ethiopia; Bogale, Hagedorn and Korf (2005) used household per capita food calories of 2300 per day as a threshold poverty line.

For the purpose of this study, the poverty line of R593 per capita per month was used. This poverty line is used by the Department of Social Development. Therefore, in this study, R593 per capita per month is the income or expenditure needed to achieve the minimum level of well-being required not to be deemed poor.

The expenditure, as opposed to income, was used as a measure of poverty in this study. This is because using income as a measure of poverty is criticised in the literature because people underestimate their income in survey data. Bhatta and Sharma (2006) were two researchers who passed judgment on the use of income as a measure of poverty. Instead, they used expenditure as a measure of poverty when determining poverty in Nepal. Bogale, Hagedorn and Korf (2005) also criticised the use of income as a measure of poverty, they also using expenditure as a measure of poverty in Ethiopia. In South Africa, studies such as those by Meth and Dias (2004) as well as Mears (2012) also used the expenditure measure of poverty. Similarly, in this study, we follow the approach of Bhatta and Sharma (2006) and Bogale, Hagedorn and Korf (2005), using the expenditure, as opposed to income, as measure of poverty.

3.5.2 Research approaches

3.5.2.1 Foster, Greer and Thorbecke poverty indices

In the first approach, the per capita expenditure of the households, excluding and including the help from NGOs, was determined. Using this approach, the help from NGOs was treated as an exogenous household expenditure. The Foster, Greer and Thorbecke poverty (FGT) indices (1984), were then used in order to assess the impact of NGOs' help on poverty incidence and closing the poverty gap. The FGT poverty indices were used because this is a widely used approach in the literature to assess the impact of exogenous income/expenditure on poverty incidence and the poverty gap (Booyesen, 2005; Leibbrandt and Woolard, 2001; Bhorat, 2003; Samson, 2002). For example, in the study of Booyesen (2005), government social grants were treated as exogenous household income and FGT poverty indices were used in order to assess the impact of government grants on poverty incidence, the poverty gap and the squared poverty gap. In this study, we follow the same approach by treating NGOs' help as an exogenous household expenditure and applying the FGT poverty indices to assess the impact of NGOs' help in reducing the level and the depth of poverty.

Unlike other studies, such as those by Booyesen (2005), we test for the significance of NGOs' help using the Kruskal-Wallis (1952) non-parametric test. The Kruskal-Wallis non-parametric test is mathematically written as:

$$H = \frac{12}{n(n+1)} \sum_{i=1}^k \frac{R_i^2}{n_i} - 3(n+1) \quad (1)$$

Where H is a Kruskal-Wallis test statistic and n is the numbers of observations in all samples. The Kruskal-Wallis test uses a chi-square distribution with k-1 degree of freedom. If the value of the test statistic is less than the chi-squared critical value, the null hypothesis of equality of proportions is not rejected, and when the value of the test statistics is more than the chi-squared critical value, the null hypothesis is rejected. The rejection of a null hypothesis implies that there is no equality of proportions.

Using the Kruskal-Wallis (1952) non-parametric test, we define Po as the proportion of poor households when households' expenditure excludes NGOs' help, and P1 as the proportion of poor households when households' expenditure includes NGOs' help. A test is then used to test for equality of proportion (Po=P1) against the alternative (Po>P1). When the alternative is not rejected at a 1%, 5% and 10% confidence level, it implies that the help of NGOs is statistically significant. In this study, the 5% confidence level was used as a decision rule to reject or accept the alternative hypothesis.

The purpose of using the Forster, Greer and Thorbecke poverty indices was to determine the number of poor households who are lifted out of poverty after they have received the help from NGOs. This was done by comparing poverty incidence for households' expenditure exclusive and inclusive of NGOs' help. Secondly, the FGT poverty indices were used to determine how close poor households are brought to the poverty line (poverty gap). Again, this was done by comparing the poverty gap for expenditure, which was defined when exclusive and inclusive of NGOs' help.

The Forster, Greer and Thorbecke poverty indices is mathematically defined as:

$$P_{\alpha} = \frac{1}{n} \sum (z - y/z)^{\alpha} \quad (2)$$

Where n is a sample size, $z - y$ is the poverty gap, z is a poverty line, y is consumption and α is the poverty aversion parameter. When α is equal to zero, equation one becomes the headcount poverty ratio, which measures the number of people who fall below the poverty line. The poverty headcount ratio measures the incidence or level of poverty. When α is set to one, equation one becomes a poverty gap, which measures how far the poor fall below the poverty line. The poverty gap measures the depth of poverty.

The results on the impact of NGOs' help using the FGT poverty indices are reported and discussed in chapter 4.

3.5.2.2 The logit econometric model

In the second approach, we used a control method to account for other variables that affect the probability of an orphan child to be poor. Since the well-being of an orphaned child is measured at the household level, these variables are the head of household characteristics that affect the probability of an orphan child to be poor. For the purpose of this study, the logit econometric model was used to control for these variables.

The logit model is an econometric model that is used to predict an outcome caused by the set of independent variables on the dependent variable, where the independent variables can be categorical or a mix of continuous and categorical variables (Pallant, 2010:168). The logit model was used for two reasons: firstly because the independent variables used in this study are mix of continuous and categorical variables; and, secondly, the dependent variable is a dichotomous/binary variable, with a value of one and zero. The following logit model was therefore estimated:

$$Pov_{it} = B_0 + B_1 HFN_i + B_2 MRT_i + B_3 GEND_i + B_4 AGE_i + B_5 EDU_i + \mu_i \quad (3)$$

Where Pov is a poverty variable taking a value of one if a household is poor and zero otherwise. HFN is the help from the NGOs, MRT is the marital status of the household head, $GEND$ is the gender of the household head, AGE is the age of the household head, and EDU is the level of education of the head of the household. The B_s are parameters to be estimated.

The choice of the variables follows those used by Bogale, Hagedorn and Korf (2005). Bhatta and Sharma (2006) also used the same variables when determining poverty in Nepal. Since the study is about quantifying the help of NGOs, the help of NGOs was added as a variable of interest. Although variables used in this study are those widely used in the literature, the model specification was tested using the link test. The results of the link test confirm that the model was correctly specified.

The principle motivation for using a logit econometric model is that the dependent variable is a dichotomous variable taking a value of 1 if a household is poor and zero otherwise. Using the logit econometric model the dependent variable is defined as:

$$Pov_i = l_n \left(\frac{P}{1-P} \right) \quad (4)$$

Where P is the probability that the household is not poor and $1 - P$ is the probability that the household is poor. $l_n \left(\frac{P}{1-P} \right)$ is a log of the odds' ratio in favour of a household being poor. Using equation 4, equation 3 can be written as:

$$l_n \left(\frac{P}{1-P} \right) = B_0 + B_1 HFN_i + B_2 MRT_i + B_3 GEND_i + B_4 AGE_i + B_5 EDU_i + \mu_i \quad (5)$$

$$\sigma^2 = \frac{1}{(1-P)} \quad (6)$$

Equation 6 is the variance of the error term.

Equation 5 was estimated using the maximum likelihood (ML) technique. With the maximum likelihood technique, the smallest possible deviance between the observed and predicted values is found (SFSU, 2002:2). The maximum likelihood technique accounts for the possibility of heteroscedasticity.

The results of the logit econometric model are reported in chapter four.

3.6 Conclusion

This chapter outlined the research methodology that was used to answer the research question.

The study was conducted in Soweto. The principle motivation for selecting Soweto is that Soweto has more NGOs than any other urban township in the City of Johannesburg. The obvious advantage of this is that it broadens the research population from which a sample was drawn. Secondly, it was an obvious choice as the level of poverty is high in Soweto. Since children are disproportionately overrepresented in poor households, it is likely that child poverty is also high in Soweto. Given the number of NGOs and the level of poverty, Soweto is an appropriate area to investigate the economic impact of NGOs in improving the well-being of orphaned children living in extended households.

There were only 13 NGOs that met the criteria to be included in this study. All the NGOs were therefore included in the study. The households within each NGO were selected using a systematic random sampling method. This was done by pooling all the households within the NGOs and randomly selecting one household, thereafter using the interval of two to select the sample.

Although there are different poverty lines used in the literature, R593 per capita per month in current prices is the threshold poverty used in this study. This poverty line is used by the Department of Social Development. Expenditure, as opposed to income, was used as a measure of poverty. This is because expenditure is widely used in empirical literature as a measure of poverty.

For the purpose of this study, two approaches were used to answer the research question. In the first approach, the help from NGOs was treated as additional exogenous household expenditure and the FGT poverty indices were used in order to assess the impact of NGOs' help in reducing the level and depth of poverty. The

Kruskal-Wallis (1952) non-parametric test was then used in order to assess the significance of NGOs' help in reducing the level and depth of poverty. In the second approach, other variables that affect poverty were accounted for by using the logit econometric model. The logit model was used because the independent variables are a mix of continuous and categorical variables.



Chapter 4

Analysis of the results

4.1 Introduction

The results of the study are presented and discussed in this chapter. The chapter starts by firstly discussing the basic demographics of all the households who participated in the study. The second section presents an analysis of each household's income. The results of both the Foster, Greer and Thorbecke poverty indices as well as the logit econometric model are presented and discussed in section three and four, respectively.

4.2 Demographic profile

This section outlines the demographic profile of all the households who participated in this study. The analysis of the demographic profile provides a better understanding of the socio-economic conditions of households caring for orphaned children.

A total of 68 households were surveyed. From all households surveyed, 63 percent are headed by females and the remaining 37 percent by males (see Table 4.1).

Table 4.1: Gender of household heads taking care of orphans

Gender	Frequency	Percentage
Male	25	37
Female	43	63
Total	68	100

Source: Own calculation from survey data

The results show that females are more inclined to care for orphaned children compared to their male counterparts. These results are similar to those found by Dieden and Gustafsson (2003). In 2002, Dieden and Gustafsson (2003) found that about two-

fifths of children in South Africa lived in female-headed households and these households are more vulnerable to poverty than households led by males.

The average number of people in a household is 5. This is more than the National average household size of 3.9 and the Gauteng provincial average household size of 3.3 (Stats SA, 2007). These results are expected since households in this study have orphaned children living with them. These households are referred to as 'extended households/families' in the literature. Following the argument made by Dieden and Gustafsson (2003), which suggests that there is a positive relationship between poverty and household size, poverty in these households is therefore expected to be higher than the average South African household.

The breakdown of the age distribution for the household heads is as follows: 4% of households are headed by persons who are less than 18 years old; 13% by persons between the age of 18 and 30; 53% of households led by custodians between the age of 31 and 50; and the remaining 30% governed by persons above 50 years (see Table 4.2).

Table 4.2: Age distribution of household heads

Age group	Frequency	Percentage
0-17	3	4
18-30	9	13
31-50	36	53
51 and above	20	30
Total	68	100

Source: Own calculations from survey data

These results support the argument made by Nyambedha, Wandibba and Hansen (2003), which asserts that elder caregivers have less capability to care for orphaned children. Hence, the majority of orphaned children are living with young adults who are in the age group of 31-50.

With regard to the level of education: 30% of household heads have obtained education ranging from Grade 0 to Grade 9; 53% of these heads have obtained education ranging from Grade 10 to 12; and the remaining 17% have a post-secondary education. Following the arguments by Wedgwood (2007) and Bhatta and Sharma (2006) that education has a positive impact on poverty, the level of poverty in this study is expected to be high since the majority of household heads don't have a post-secondary school education.

Almost half of household heads (45 percent) are single and never got married, 4% of household heads are divorced and 22% are married. The remaining 10% of household heads are living with their partner and 18% are widowed. Therefore, the majority of orphaned children are living with young, single females.

Table 4.3: Marital status of household heads

Marital status	Frequency	Percentage
Single	31	46
Married	15	22
Divorced	3	4
Living with a partner	7	10
Window	12	18
Total	68	100

Source: Own calculations from survey data

From the analysis of the demographic profile, it is clear that orphaned children are disproportionately overrepresented in poor households. This is because the majority of orphaned children are living in households headed by young, single females who have a Matric as their highest level of education. In the next section, the income of the extended households caring for orphaned children will be analysed in order to better understand the vulnerability faced by orphaned children living in such households.

4.3 Analysis of household income

In this section, the size and sources of household income are reported and analysed. The analysis of the size and sources of household income is important for two reasons. Firstly, it provides an assessment of whether households living with orphaned children have enough income to achieve the minimum level of well-being required not to be deemed poor. Secondly, it gives useful information on which source of household income is important for reducing poverty.

Table 4.4 reports the per capita household income per month in current prices. Income per capita was calculated by taking the income of each household in a sample and dividing it by the number of household members.

Table 4.4: Per capita household income per month

Per capita Income	Frequency	Percentage
0-R593	45	65
R594-R1000	12	18
R1100-1500	7	11
<1600	4	6
Total	68	100

N= 68: Own calculation based on survey data

From Table 4.4, it is clear that 65 percent of households in this study have a per capita income of less than R593 per month. Since R593 is the poverty line used in this study, it means that 65% of households in this study live in poverty. Alternatively, using the exchange rate of R11.20 to the US Dollar, as at 19 November 2014 and the poverty line of \$2 per capita per day as used as a benchmark of poverty according to the World Bank; the poverty line is R660 in current prices. Using this poverty line, 68% of households in this study are poor. Therefore, irrespective of the poverty line used, more than 60% of households in this study live in poverty.

The poverty level estimated in this study is more than the national poverty levels estimated by Tregenna (2011) as well as Hoogeveen and Ozler (2005). Using the South African income and expenditure data and poverty line of R350 in terms of the year 2000's prices; Tregenna (2011) found that 58% of households in South Africa were

living in poverty in 2006. Hoogeveen and Ozler (2005) used the World Bank poverty line of \$2 per capita per day, also finding that the poverty headcount ratio in South Africa remained at about 58% between 1995 and 2000.

Since the level of poverty estimated in this study is more than the national poverty levels estimated by Tregenna (2011) as well as Hoogeveen and Ozler (2005), it can be concluded that households caring for orphaned children are probably more vulnerable compared to average South African households.

We further analyse the average contribution of different sources of households income. This will provide useful information on which source of income contributes most to household income.

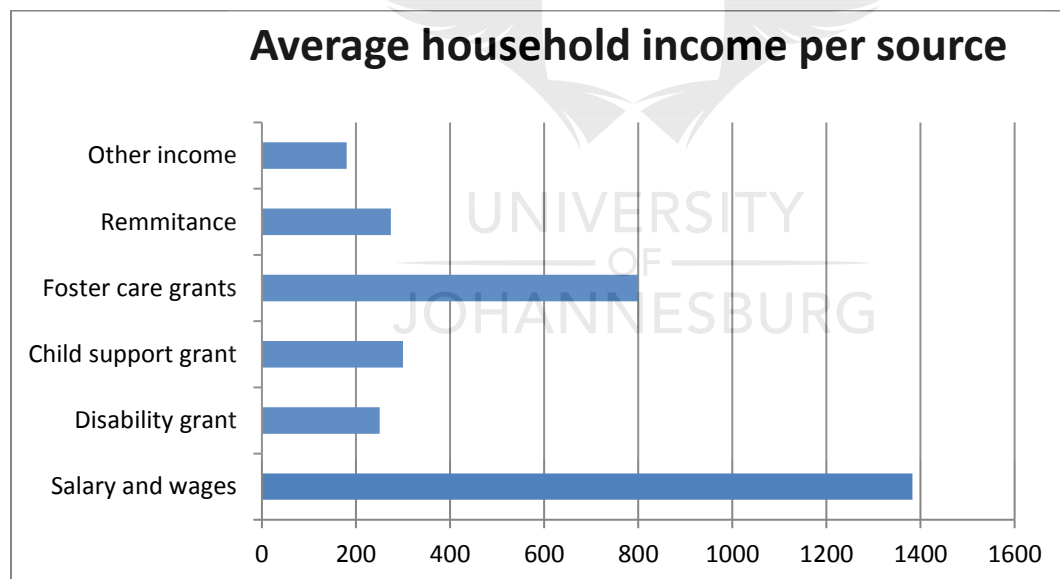
Figure 4.1 reports the average contribution of different sources of household income. From Figure 4.1, the largest source of household income is salaries and wages. However, these results should be interpreted carefully. The reason for this is that the sample includes both poor and non-poor households. Therefore, the income of the latter increases the average of work income relatively to other sources of income in a sample. To provide a control for this, we separated poor households from those above the poverty line; and, thereafter assessed the average contribution of different sources of income in both poor and non-poor households separately. We found that a government social grant, especially the foster care grant, was the main source of income in poor households. A foster care grant is a government social grant meant to benefit children who have been put in a care of a foster parent by the court (Blaauw, Viljoen and Schenck, 2011).

The contribution of foster care grants to household income is expected since households in this study have orphaned children living with them. The majority of orphaned children in this study (103 out of 115) are recipients of a foster care grant. These results show that poor households living with orphaned children depend on government transfers for their material survival. Across the entire sample, the foster care grants were the second largest source of household income. These results are similar to those found by Booysen (2005), namely, that government social grants were

an important source of income in poor households. An important implication of this is that government social grants play a fundamental role in reducing the level and the depth of poverty in poor households living with orphaned children.

Contrary to the findings of Hansen and Tarp (2000), the contribution of remittances is found to be insignificant here. The reason for this might be that public transfers, such as foster care grants, crowd out private transfers such as remittances. This argument is supported by Maitra and Ray (2003) who found that public transfers crowd out private transfers in poor households. Maitra and Ray (2003) discovered that poor households are more likely to receive remittances from household members who are resource-constrained themselves. However, given the fact that their finances are limited, these household members will find it optimal to reduce the amount of transfers they send if they know that the household's needs are catered for through public transfers.

Figure 4.1: Average contribution of different sources of household income



Source: Own calculation from survey data

These results show that the majority of extended households living with orphaned children are resource-constrained and depend on government social grants to survive materially. In the next section, the impact of NGOs' help in reducing the level and the depth of poverty in these households will be analysed using the FGT poverty indices.

4.4 Foster, Greer and Thorbecke poverty indices

This section presents the results of NGOs' help in decreasing poverty incidence and closing the poverty gap.

4.4.1 The impact of NGOs' help on poverty incidence (level of poverty)

Poverty incidence is the proportion of households in a population/sample who are poor. Poverty incidence was calculated by taking the per capita expenditure of each household in the sample and comparing it to the yardstick poverty line of R593 per month. A household is deemed poor if its per capita expenditure is below the yardstick poverty line and not poor if its per capita expenditure is above the poverty line. For the purpose of this study, two methods were used to assess the impact of NGOs' assistance in reducing poverty incidence.

In the first method, the impact of NGOs' help in minimising poverty incidence was assessed by calculating the poverty incidence with regard to situations where expenditure is exclusive of NGOs' aid, and contexts where it includes NGOs' help. The comparison of poverty incidence for expenditure that is exclusive of, and that which is inclusive of, NGOs' help makes it easy to track the number/percentage of households who are lifted out of poverty after they have received these hand-outs.

Table 4.5 reports the results on poverty incidence (the level of poverty) for expenditure that is defined as that which is exclusive and inclusive of NGOs' help.

Table 4.5: Poverty incidence excluding and including the help from the NGOs

	Poverty incidence excluding NGOs' help	Poverty incidence including NGOs' help
Poor	65%	46%
Non-poor	35%	54%
Total	100	100

N=68 Source: Own calculations based on survey data

From Table 4.5, the poverty incidence defined for expenditure that was exclusive of NGOs' help is 65%. This means that 65% of households in the sample are poor. In comparison, only 46% of households are poor when poverty incidence is defined for expenditure that is inclusive of NGOs' help. Therefore 19% of households in the sample are elevated above the threshold poverty line when the help of NGOs is incorporated as additional household expenditure.

The Kruskal-Wallis non-parametric test was used to test for the significance of the difference between the per capita expenditure of households exclusive and inclusive of NGOs' help. The Kruskal-Wallis non-parametric test was used in order to assess the significance of NGOs' help in reducing the level of poverty.

From the Kruskal-Wallis test, the difference between per capita expenditure of households excluding and including the help from the NGOs is statistically significant at a 1% confidence interval. This means that the help of NGOs is statistically significant in reducing the level of poverty.

Table 4.6: Kruskal-Wallis equality-of-populations rank test

Per capita expenditure	Obs	Rank Sum	Chi-Square	Probability
Expenditure excluding NGO help	68	3717.50	16.756	0.0001***
Expenditure including NGOs help	68	5598.50		

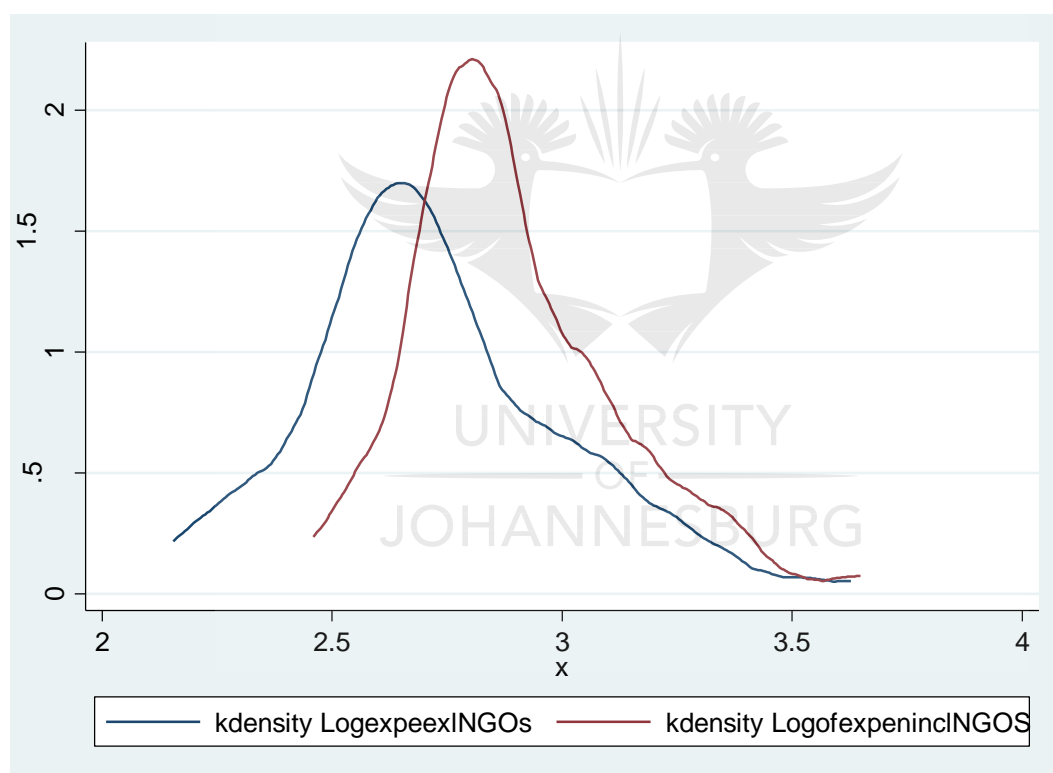
***, **, *1%, 5% and 10% level of significance, respectively

In the second method, the Kernel density function was used in order to assess the impact of NGOs' aid on poverty incidence. The Kernel density function is a non-parametric model that accounts for the non-linearity of the data. The advantage of using the non-parametric model is that there are no assumptions that are made about the distribution of the data. The use of a Kernel density function is common in the literature. For example, studies such as those conducted by Borat (2003) and Samson (2002) used Kernel density functions to assess the impact of government grants on poverty incidence. In this study, we follow the approach of Borat (2003) and Samson (2002) in

using the Kernel density function to assess the impact of NGOs' assistance on poverty incidence.

Figure 4.2 displays the Kernel density function of a log of household expenditure inclusive and exclusive of NGOs' contributions. From Figure 4.2, it is clear that the help from NGOs squeezes the distribution of the data upward to the left. This means that NGOs' assistance reduces the level of poverty. Secondly, the tail of the distribution increases. This means that NGOs' intervention reduces the depth of poverty.

Figure 4.2: Kernel density functions of a log of household expenditure excluding and including NGOs' help



Source: Own calculations from survey data

These results have two important implications. Firstly, the help of NGOs is appropriately aimed at assisting poor households. Therefore NGOs are efficient in identifying orphans living in poor households. Secondly, NGOs play a very important role in reducing the level of poverty in poor households living with orphaned children.

4.4.2 The impact of NGOs' help in closing the poverty gap (depth of poverty)

The poverty gap measures the extent to which poor households fall below the poverty line (depth of poverty). The poverty gap is calculated by summing the gaps between the poverty line and the expenditure of each poor household. Since R593 per capita per month is the threshold poverty line used in this study, the poverty gap was calculated by summing the gaps between the threshold poverty line of R593 and the per capita expenditure of each poor household in the sample. The addition of these gaps gives a minimum cost of eliminating poverty. The minimum cost of eliminating poverty is called the 'aggregate poverty gap'.

The impact of NGOs' help on the poverty gap was assessed by comparing the aggregate poverty gap and the per capita poverty gap for household expenditure both inclusively and exclusively of NGOs' help. The per capita poverty gap is an average amount that each poor household needs in order to be out of poverty.

Table 4.7 reports the aggregate poverty gap for expenditure defined as exclusive and inclusive of NGOs' help for the sample of 68 households used in this study. To restate, the aggregate poverty gaps were calculated by summing the difference between the threshold poverty line of R593 and the per capita expenditure of each poor household in the sample.

Table 4.7: Poverty gap including and excluding NGOs' help

Poverty gap	Monetary Value	Per capita poverty gap
Excluding NGOs' help	R6200	R140
Including NGOs' help	R4000	R129

Source: Own calculation based on survey data

From Table 4.7, the aggregate poverty gap defined for expenditure exclusive of NGOs' help is R6200. This means that in the absence of NGOs' help, poor households in the sample will need R6200 to be out of poverty.

Since 65% of the 68 households are poor when the help of NGOs is excluded from households' expenditure, the number of poor households is 44. Therefore, the average poverty gap per household is 140 (6200/44). This means that each poor household needs, on average, an additional R140 to have a per capita expenditure of R593.

In comparison, the aggregate poverty gap for expenditure defined inclusive of NGOs' help is R4000. Therefore, the aggregate poverty gap decreases by R2200 (R6200 – 4000) when the help of NGOs is incorporated as household expenditure.

The number of poor households was calculated to be 31 (0.46/68) when the help of NGOs was included as an additional household expenditure. Therefore, the average poverty gap per household is 129 (4000/31). Hence, each poor household needs, on average, R129 to be out of poverty. The aggregate poverty gap and the per capita poverty gap decreases by R2200 and R11 respectively when NGOs' help is included as household expenditure.

The Kruskal-Wallis non-parametric test was used to test for the significance of the difference between the poverty gap inclusive and exclusive of NGOs' help. From the Kruskal-Wallis test, the difference between the aggregate poverty gap, including and excluding the help from the NGOs, is statistically significant at a 1% confidence interval. This means that the help of NGOs is statistically significant in reducing the depth of poverty.

Table 4.8: Kruskal-Wallis equality-of-populations rank test

Per capita expenditure	Obs	Rank Sum	Chi-Square	Probability
Expenditure excluding NGO help	68	5598.00	16.738	0.0001***
Expenditure including NGOs help	68	3718.00		

***, **, *1%, 5% and 10% level of significance, respectively

4.5 The results of a logit econometric model

An econometric model was adopted in order to account for other variables that affect poverty and also to evaluate the significance of NGOs' help in reducing the level of poverty. For this purpose, the logit econometric model was estimated.

As explained in chapter 3, the logit model is an econometric model which is used to predict an outcome caused by the set of independent variables on the dependent variables, where the independent variables can be categorical or a mix of continuous and categorical variables (Pallant, 2010:168). For the purpose of this study, the logit model is used to predict whether the help of NGOs can significantly reduce the level of poverty in households caring for vulnerable orphaned children. Moreover, the logit model was used because the dependent variable is a binary/dichotomous variable, taking a value of one if a household is poor and zero otherwise.

The general form of the logit model to be estimated is:

$$\text{Log} \left(\frac{P}{1-P} \right) = B_0 + \sum B_j X_j + \sum B_j D_j + u_j$$

Where P is a probability of a household to be poor, X is a set of continuous variables, D is a set of dummy variables and u is an error term. The dependent variable is a log of odds ratio in favour of a household being poor.

Before discussing the results of the model, it is important to discuss the choice of variables used, and their expected sign, as well as the diagnostic tests used to estimate the final model.

4.5.1 Variables used and their expected signs

Four control variables, which, according to the theory and the literature, are believed to influence the level of poverty, were used. These variables were used by Bogale, Hagedorn and Korf (2005) as well as Bhatta and Sharma (2006). For the purpose of this

study, these variables are the head of each household characteristics that affect the probability of an orphaned child to be poor. These variables are:

1. Gender of the household head;
2. Age of the household head;
3. Marital status of the household head;
4. Education of the household head;
5. Help from NGOs.

Since the study is about quantifying the help of NGOs, the help from the NGOs was therefore added as a variable of interest . Since the help of NGOs increases household expenditure, the coefficient of NGOs' help is expected to have a negative sign. In this analysis, a negative sign would mean that the coefficient reduces the level of poverty, while a positive sign reflects the opposite. This is because the dependent variable is a dummy variable taking a value of zero if a household is not poor and 1 otherwise.

The coefficient of a gender is a dummy variable taking a value of 1 if the head of a household is a male and zero otherwise. In theory and in the literature, on average, males earn more than their female counterparts. The sign of a male dummy is therefore expected to be negative.

Marital status is also a dummy variable taking a value of 1 if the head of a household is married and zero otherwise. From the demographic analysis and literature survey, marriage reduces the level of poverty. The sign of marital status is thus expected to be negative.

According to the standard labour market theory, there is a positive relationship between age and income. The coefficient of age is therefore expected to be positive.

Lastly, from the demographic analysis and literature overview, the accumulation of human capital is believed to reduce the level of poverty. For the purpose of this study, education is used as a proxy for human capital. The coefficient of education is therefore expected to be positive.

4.5.2 Diagnostic tests

The estimated model was tested for multicollinearity, meaning that the independent variables are correlated. As a result, it is difficult to isolate the influence of one variable on the dependent variable. The presence of multicollinearity widens the confidence interval leading to wrong inferences. The presence of multicollinearity was tested using the variance inflation factor. The value of variance inflation factor was less than 10, implying that there was no presence of multicollinearity. The Durbin Watson test was used to test for the presence of autocorrelation. Autocorrelation means that the residuals are correlated. Autocorrelation leads to wrong inferences. There was also no presence of autocorrelation in the residuals. Although heteroscedasticity was not tested, the maximum likelihood technique used to estimate the logit model, correcting for heteroscedasticity.

Failure to account for multicollinearity, autocorrelation and heteroscedasticity leads to bias and inconsistent estimates.

4.5.3 The results

Before discussing the results of the model, it is important to clarify the following: since the dependent variable is a dummy variable taking a value of zero, if a household is not poor and 1 otherwise; a negative sign would mean that a coefficient reduces the level of poverty, and therefore a positive sign would mean the opposite. Secondly, the interpretation of categorical variables is different from the interpretation of continuous variables. Since categorical variables place observations in the categories that are mutually exclusive, the categorical variable is interpreted as a ratio by which the probability differs from the reference category (Dieden and Gustafsson, 2003). Continuous variables are interpreted as the partial change in probability from an increase in the variable (Dieden and Gustafsson, 2003). The results of the model are presented below:

Table 4.9: Logit econometric model

Logistic regression		Number of obs =		68	
		LR chi2(6) =	35.05		
		Prob> chi2 =	0.0000		
Log likelihood = -23.668806		Pseudo R2 =		0.4254	
Poverty	Coef.	Std. Err.	z	P>z [95% Conf. Interval]	Interval]
NGOhelp	-.883221	.4311662	2.04	0.019 -.1.73663	.0008483
Gen	.7096316	.8880547	0.80	0.424 -1.030924	2.450187
Maritast	-.2340393	.9611262	0.24	0.808 -1.649733	2.117812
Age	-.0025483	.0483783	0.05	0.958 -.0922714	.097368
Levelofeduc~n	-.8960369	.3666901	2.44	0.015 .1773375	1.614736
Noofhouseho~s	.9112803	.3698863	-2.46	0.014 -1.636244	-.1863164
_cons	-7.169018	4.425788	-1.62	0.105 -15.8434	1.505367

***, **, *1%, 5% and 10% level of significance, respectively

From the regression results, the coefficient of NGOs' help is negative as expected and significant. This means that the help of NGOs reduces the probability of an orphaned child to be poor. Although the odds ratios are not reported in the table, the odds ratio of households receiving NGOs' help is 3.32, which means these households are three times more likely not to be poor compared to households not receiving any assistance. From these results, it can be concluded that NGOs play an important role in reducing the level of poverty in those extended households living with orphaned children. These results support the results found using FGT poverty indices. Therefore, NGOs play a pivotal role in improving the well-being of orphaned children living in the extended households.

With regard to education, the coefficient of education is negative as expected and significant. This means that education reduces the probability of being poor. This supports an argument made by Wedgwood (2007), who asserted that education has a positive impact on poverty. Orphans living in households where the head is educated

are less likely to live in poverty. The odds ratio of education is 2.3, which implies that orphans living in households where the head of a household is educated are twice more likely not to be poor compared to orphans living in households where the household heads are not educated.

The coefficient of marital status is negative as expected, but insignificant. The reason for it having an insignificant coefficient could be that married partners are reluctant to live with orphaned children. The majority of orphaned children live with young, single females and/or grandparents.

The gender coefficient is positive as expected, but insignificant as well. The positive sign is not surprising since the majority of household heads are female. The reason for this could be that females earn less than males. Therefore, households headed by women are more likely to be in poverty compared to households spearheaded by men. To reiterate, in this study, it was found that most orphaned children live with women. Therefore the majority of orphaned children are living in poor households.

As expected, the coefficient of a household's size is positive and significant. The positive sign implies that the greater the household size, the greater the probability of being poor. This finding is consistent with the literature.

4.6 Conclusion

In this chapter, the results of the study were presented and discussed. The chapter started by presenting and discussing the basic demographic profile of the sampled households. The results of the FGT poverty indices were thereafter discussed and the chapter was concluded by presenting and discussing the results of the logit econometric model.

From the demographic section, it was found that the majority of households are run by females. Secondly, the majority of household heads have only obtained education up to Grade 12, hence the level of poverty was found to be high. Lastly, the majority of orphaned children live with young, single females and/or grandparents.

The results of FGT poverty indices were presented in section 4.2. From the results, it was found that the help of NGOs reduces the level of poverty by inflating the per capita expenditure of the poor, launching them above the poverty line. Secondly, the help of NGOs reduces the depth of poverty by elevating the per capita expenditure of the poor close to the poverty line. It was last found that the help of NGOs increases the inequality of income among the poor.

From the logit econometric model, it was found that the help of NGOs was negative as expected and significant at a 10% significance level. It was therefore concluded that NGOs play a key role in reducing poverty in extended households living with orphans, hence improving the well-being of these children.



Chapter 5

Conclusion

5.1 Summary of the study

Child poverty in South Africa has received wide analysis and empirical investigation in the literature. From the literature survey in chapter two, there is growing consensus that child poverty is high in South Africa (Streak, Yu and Van der Berg, 2009; Streak, 2005; Dieden and Gustafson, 2003). For example, studies such as those by Streak (2005) found that an overwhelming 60% of children in South Africa lived in the bottom 40% of households when ranked according to income. Also, Dieden and Gustafson (2003) found that child poverty was high in South Africa and it was more dominant in rural areas compared to urban areas. More worrying studies, such as those by Streak, Yu and Van der Berg (2009); uncovered that poverty among minors was higher than adult poverty in South Africa.

The high level of child poverty in South Africa is mainly caused by the increasing number of vulnerable, orphaned children (UNICEF, 2003). Clover, Gardner and Operario (2009) estimated that about 2.2 million children were orphaned by HIV/AIDS in 2007 and this number is expected to increase to 5.2 million in 2015.

The majority of orphaned children live in extended households usually with an elder who assumes the responsibility of being a caregiver. About two thirds of all orphaned children in South Africa are living in extended households (Foster, 2000). This is because the extended household is traditionally preferred as an efficient model of care for orphaned children. However, their role, as a safety net for orphaned children, has been weakened by the high rate of HIV/AIDS infections, poverty and unemployment. Consequently, the majority of these homes housing orphaned children are struggling to care for them in terms of providing food, clothes and medical care.

International agencies such as the United Nations Children Fund (UNICEF) and the United States Agency for International Development (USAID) are funding developing

countries in order to help them cope with the increasing number of orphaned children. These funds are channelled through local NGOs that identify orphaned children in local communities. The role of local NGOs is to use these funds to help orphaned children in local communities. Therefore, these local NGOs are important in strengthening the role of extended households as being a solid refuge for orphaned children by providing food, clothes and medical care to them.

Although local NGOs play an important role in improving the well-being of orphaned children, and hence reducing orphan poverty; there is little, if any, literature quantifying the economic impact of these local NGOs. It is against this background that this mini-dissertation strives to bridge this knowledge gap by quantifying the economic impact of NGOs in improving the well-being of defenceless orphaned children living in extended households.

Methodologically, two approaches were used to quantify the help of NGOs. In the first approach, the Foster, Greer and Thorbecke (FGT) poverty indices, which were developed by them (1984), were used in order to assess the impact of NGOs' help in reducing the level and the depth of poverty in the extended households living with orphaned children in Soweto. In the second approach, the logit econometric model was used in order to assess whether the help of NGOs was significant in reducing the level of poverty after controlling for other variables that affect the probability of an orphaned child ultimately being poor.

Both approaches require the specification and measurement of a poverty line. This was a challenge since there is no official poverty line defined in South Africa. Different studies use different poverty lines. For the purpose of this mini-dissertation, a poverty line of R593 per capita per month in current prices was used. This poverty line is used by the South African Department of Social Development. After carefully reviewing the literature, expenditure, as opposed to income, was used as a measure of poverty. Therefore, R593 per capita per month is the expenditure needed to achieve a minimum level of well-being required not to be deemed poor.

In seeking to quantify the impact of NGOs' help in improving the well-being of vulnerable, orphaned, children living in the extended households in Soweto, it was important to first analyse the demographic profile of the extended households living with orphans. The analysis of the demographic profile provides a better understanding of the socio-economic conditions of households living with orphans. From the analysis of the demographic profile in chapter 4, we found that orphaned children are disproportionately overrepresented in households headed by young unmarried females who have a Matric certificate as their highest level of education. Most of these household heads are unemployed and depend on government social grants to survive materially. From this analysis, it was clear that the majority of household heads living with orphaned children, are, themselves, resource-constrained and are struggling to survive materially.

After analysing the demographic profile of extended households living with orphaned children, the second step was to analyse the income of the extended households in order to assess whether these households have enough income to meet the minimum level of well-being required not to be deemed poor. Using R593 per capita per month as a threshold poverty line, we found that more than 60% of households in this study are living in poverty. This is more than the national poverty level estimated by Tregenna (2011) as well as Hogeveen and Ozler (2005). Therefore the majority of the extended households living with orphaned children don't have enough income to meet the minimum level of well-being required not to be deemed poor. These results are consistent with the literature (Booyesen, 2005; Miller, Griskin, Rajaraman and Heymann, 2006; Nyambedha, Wandibba and Hansen, 2003). These studies found that most of the extended households are living in poverty, and are therefore struggling to care for orphaned children in terms of basic needs.

We further analysed household income in terms of different sources of income that contribute to overall income. From this analysis, work income was the main source of household income. These results should be interpreted carefully. The reason for this is that the sample includes both poor and non-poor households. Therefore, the income of non-poor households increases the average of work income relative to other sources of

income in the sample. To control for this, we separated poor households from non-poor households and thereafter we assessed the average contribution of different sources of household income for both poor and non-poor households separately. From this analysis, government social grants, especially foster care grants, was the main source of income for the poor households. Again this finding is consistent with the literature. Booysen (2005) found that government social grants were the main source of income in poor households. Although most of the extended households caring for orphaned children are living in poverty, social grants reduce the depth of poverty in these households. Without government grants, these household would be living in severe poverty.

From the analysis of the demographic profile and household income, it is clear that orphaned children are disproportionately overrepresented in poor households. Consistent with the literature, the majority of extended households are struggling to care for these children.

Armed with this knowledge, we then assessed the impact of NGOs' help in improving the well-being of such children living in extended households using FGT poverty indices and a logit econometric model, as per the objective of this study.

As explained in chapter three, the FGT poverty indices were used in order to assess the impact of NGOs' help in reducing the level and the depth of poverty in poor households caring for orphaned children.

Using FGT poverty indices, we found that the help of NGOs was significant in reducing the level of poverty in poor households. Comparing household expenditure as defined both exclusive and inclusive of NGOs' help, 19% of poor households in the sample are launched out of poverty. Without any doubt, the help of NGOs is important in reducing the level of poverty in poor households living with orphaned children. The help of NGOs is important in strengthening the role of the extended household as a safety net for orphaned children.

The help of NGOs was also important in reducing the poverty gap. As explained in chapter 4, the poverty gap measures the depth of poverty. Using the FGT poverty

indices, we found that the help of NGOs is important and significant in bringing the expenditure of the poor households close to the poverty line. Although some households remain poor even after they have received help from the NGOs, these poor households would have been in severe poverty without NGOs' help.

Although the FGT poverty indices is an important approach in assessing the effect of NGOs' assistance in reducing the level and the depth of poverty, the shortcoming of using the FGT poverty indices is that the approach fails to account for other variables that affect the probability of an orphan child to be poor. We overcome this shortcoming by using the logit econometric model in order to control for other variables that affect the probability of an orphaned child to be poor. After carefully reading the literature, four variables were used as control variables. Consistent with the literature, these variables are the heads of households' attributes that affect the probability of an orphaned child to be poor. The help of NGOs was added as a variable of interest. Although variables used were those widely used in the literature, the model specification was tested using the link test. The results of the link test confirmed that the model was correctly specified.

The results of the logit econometric model are consistent with the results of FGT poverty indices. Using the logit model, we found that the help of NGOs was statistically significant in reducing the level of poverty in poor households in Soweto. These confirm that the help of NGOs is important in reducing the level of poverty.

Using the logit model, we analysed the heads of households' characteristics that affect the probability of an orphaned child to be poor. We found that education of the household's head was strongly associated with poverty. This means that education was a strong predictor of reducing the level of poverty. This is confirmed by the fact that the majority of non-poor households in the sample have a post-Matric qualification compared to the majority of poor households who have a Matric (or lower) as their highest level of education.

Another strong predictor is the number of household members. We found that there was strong association between the number of household members and poverty. The number of household members increases the odds of being poor. It was therefore not

surprising that the majority of households in this study were living in poverty since they expanded by having orphaned children living with them.

Gender was not statistically significant in reducing the level of poverty. This is inconsistent with the literature. From the literature survey, gender is an important predictor of poverty (Bogale, Hagedorn and Korf, 2005).

The marital status was also not statistically significant. We believe that the reason for this is that most of the married couples in this study are also resource-constrained.

Overall, the help of NGOs is important in reducing the level and the depth of poverty in extended households living with orphaned children in Soweto. The NGOs play an important role in strengthening the role of the extended households as a refuge for orphaned children.

5.2. Policy recommendations and future research

An effort to eradicate poverty among orphaned children requires a thorough understanding of the environment in which orphaned children live. This includes an understanding of the socio-economic conditions of households living with orphaned children as well as the orphans' relationships with household members with whom they interact on daily basis. Knowledge of this information will guide policy intervention in terms of how to improve the well-being of this vulnerable group in society.

Secondly, there is a need to understand the support systems that are in place to support orphaned children. This includes understanding the role of different stakeholders that are involved in assisting orphaned children, such as the government and NGOs. Although there has been wide empirical investigation on the impact of government grants in reducing poverty in South Africa; to our knowledge, there is no research on the impact of government grants in improving the well-being of orphaned children. Moreover, there is no research on the role of NGOs in improving the socio-economic conditions of this vulnerable group. Understanding the role of different

stakeholders that are involved in supporting orphaned children will guide policies on how to strengthen these stakeholders both financially and in other ways.

Lastly, this is the only data available on households living with orphaned children. It will be beneficial in broadening these findings through collecting data at a national level. This will encourage much needed research on socio-economic conditions of orphaned children in South Africa at large.

This mini makes the following policy recommendations:

1. Empirical results shows that employment income is the second largest source of income in poor households, is therefore important for the government to develop employment programmes aimed at employing the caregivers of extended household
2. Although child-headed households constitute small percentage as compared to households headed by old persons, government need to employ caregivers in child-headed households

5.3 Limitations of the study

The analysis of the results is based on primary data that was collected through surveys. Due to financial and time constraints, the data was only collected for households living with orphaned children in Soweto. Due to the differences in economic profiles between rural and urban communities, these results could not be generalised to other urban areas.

Some of the households were not available during the field work and others refused to participate in the study. With these difficulties, the number of households used in this study was small. Although the sample was small, this study provides a basis from which socio-economic conditions of orphaned children could be further analysed.

Some of the NGOs' assistance could not be quantified: for example, some NGOs give counselling to a number of orphaned children, but unfortunately the impact of this on the

well-being of orphaned children could not be quantified. This necessitates the need for a mixed method approach for future research.



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Appendix A: Survey Instrument

Department of Economics and Econometrics – University of Johannesburg

June 2014

Dear Sir/Madam

We are researchers from the University of Johannesburg's Department of Economics and Econometrics. Research is being conducted on the economic impact of Non-Governmental organisations in improving the well-being of orphaned children. The information will be used to inform policy makers on policies which can make a difference in the lives of the orphaned children. The results from the research will also translate into a Master's mini-dissertation and could also be published in scientific journals at a later stage. Please be aware that the information you may provide is anonymous, so no answers you provide can be traced back to you. We hope this encourages you to answer the questions as freely and honestly as possible.

Activities of the project:

- We are going to ask you some questions that will take about 30 minutes of your time.
- The questionnaire consists of 14 questions, included in four different sections (A, B, C and D).
- The questions relate to the information on the household, income and expenditure of the household and NGOs.

Please remember that:

- No personal identification information is asked from you (i.e. your name, contact details, or ID number, etc.) so the responses are completely anonymous. Therefore, there is no way in which any responses or results from the completed study can be traced back to an individual.
- You have the right to ask questions about this study. If any questions arise while explaining this form, please ask them freely and take your time. Any questions you may have about the questionnaire or the questions themselves will be answered and you may take your time until you are comfortable to proceed.
- You do not have to participate in this study. If you feel that you do not want to be part of the study, you are free to withdraw at any time and your information will not be included in the results of the study. We will not put you under any pressure if you feel uncomfortable to continue.
- No monetary compensation is offered for your participation. This information is gathered in the interests of science, research and society in general. Your willingness to contribute your time and honesty during this process is highly appreciated.



Thank you for participating in this study. For more information you can contact the researcher, Mr. M S Rooderick in the following ways:

M S Rooderick

Tel no: 011 559 2101

Cell no: 073 175 1261

Email address: septemberr@uj.ac.za

QUESTIONNAIRE

Section A: This section covers the particulars of the head of the household and the number of people living in the household.

1. Is the head of the household a male or a female?

Male	1
Female	2

2. What is the marital status of the head of the household?

Married – (Western or Traditional)	1
Widow or widower	2
Divorced	3
Single/never married	4
Living with a partner but not formally married	5

3. How old is the head of the household (age in years)?

.....

4. What is the highest level of education the head of the household has successfully completed?

Grade

0	1	2	3	4	5	6	7	8	9	10	11	12
Post-school qualification												13
In the case of a post-school qualification, please describe the qualification (e.g. certificate, diploma, degree, etc.)												

.....

5. How many people live in this household?

.....

Section B: This section covers different sources of income-generating activities of the head of the household and other members of the household.

6. Please provide an indication (as far as possible) of the amount of income (in Rands) derived from different sources to run the household per month:

	Sources of income	Head of the household (SA Rand)	Other household members (SA Rand)
1	Salary and wages?		
2	Child support grant?		
3	Disability grant?		
4	Old age grant?		
5	Other grant (not mentioned above)? (Please specify)		
6	Pension from a previous job? (Please specify)		
7	Interest on an investment?		

8	Financial assistance from family members / relatives or friends?		
9	Other? (Please specify).....		

7. What is the total household income per month? (In SA Rands)

.....

Section C: This section covers consumption expenditure incurred by the household.

8. Please provide an indication (as far as possible) of the amount spent (in Rands) on the following items for the household per month:

Product	Less than R250	R250 – R350	R500- R750	R750 - R1000
Food				
Clothing				
Coal				
Blankets				
Shoes				
Paraffin / petrol / diesel				
Other energy				
Taxi				
Other transport				
Cleaning materials (soap & washing powder)				
Cigarettes, tobacco, snuff or other items for				

smoking				
Alcoholic beverages like beer, wine & spirits				
Medical expenses				
Shelter/room/house/place to sleep				
Other - please specify				

9. What is the total household expenditure per month (in SA Rand)?

.....

Section D: This section covers the help provided by the NGO(s) to the household and the number of orphans living in the household.

10. How many NGOs provide assistance to this household?

.....

11. What type of help or assistance is the household receiving from the NGO(s)?
(Mark all applicable with an X)

	Mark all applicable with an X	Amount per month
Food parcels		
Educational assistance		
Clothes		
Paying the bond, rent and/or other accommodation costs		
Medical care and/or health services		
If other, please specify		

.....		
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12. What is the total value (in SA Rand) of items provided by the NGO(s) to this household?

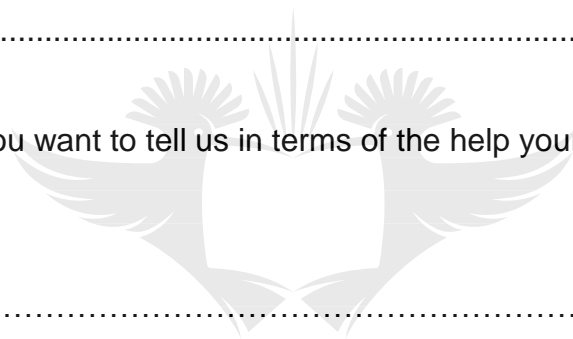
.....

13. How many orphaned children live in this household?

.....

14. What do you feel you want to tell us in terms of the help your household is receiving from the NGO(s)?

.....



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Thank you for participating in this study.

Your assistance and help in gathering information is greatly appreciated.

Appendix B: List of NGOs in the City of Johannesburg

