Randomised evaluation of unconditional cash transfer scheme for the elderly in Ekiti State Nigeria

RESEARCH PROPOSAL

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1. Abstract (100 to 250 words)

Many countries in the developing world have implemented conditional non-contributory old age pensions. But, most recent regional level and pilot interventions have been implemented in Sub-Saharan Africa, including the Ekiti cash transfer scheme for the elderly in Ekiti state, Nigeria. Due to the absence of randomised evaluation of these new schemes however, little is known about their impact on the beneficiaries, particularly in an environment with high poverty levels and multiple demands on increasingly constrained budget. A demonstrated impact of these new schemes is important for evidence-based policy making, to justify resources allocation towards expansion, and to inform donor decisions as to whether to co-fund. We propose a randomised evaluation of the Ekiti State cash transfer scheme for the elderly. The scheme is an unconditional, non-contributory pension scheme for citizens of the state, aged 65 years and over, and not receiving any pensions. It is the first of its kind to be implemented in Nigeria and West Africa. Whilst we expect the scheme to improve the living conditions of the beneficiaries (e.g. nutrition status and health), the size of the impact may differ by gender or location. We are also interested in understanding whether there are any unintended effects associated with the scheme. Our proposed study is timely as the roll-out of the first phase has not commenced. Also, the project will be undertaken in collaboration with the state’s Ministry of Labour, Productivity and Human Development, thereby helping to build capacity for impact evaluation in the government department.

2. Main research questions and research objectives

In the rapidly ageing developing world, the elderly have become one of the most vulnerable and excluded groups in the population. Poverty tends to be more prevalent amongst the elderly than amongst the younger groups, particularly amongst the elderly who have no access to formal social security such as employment-related pensions (e.g. Dethier et al 2011). Also, most of the elderly citizens are unable to take advantage of income generating opportunities even when they are available. In this case, a social security intervention such as a non-contributory cash transfer provides an available option (International Labour Organisation 1999).

In Sub-Saharan Africa, the rapidly ageing population has been accompanied by increasing responsibilities of the elderly people, in addition to looking after their own welfare. These additional responsibilities arise from the impact of HIV/AIDS pandemic which has left children of victims in care of the elderly, and the result of years of conflicts and wars (e.g. Charlton and Rose 2001). Also, the traditional family support systems have been eroded by rapid economic and social change (e.g. urbanisation, migration, and reduction in remittances). In this situation, the provision of social protection interventions such as old age non-contributory cash transfer scheme as an option cannot be overemphasised. Such interventions provide a way to reducing poverty, vulnerability, and promoting pro-poor growth in SSA.

As in many other countries in the developing world, the Nigerian population is ageing. The proportion of the population aged 65 and over is 4.8 million, representing 3.1% of the national population (National Population Commission 2011). This is projected to reach 8.8 million in 2022, almost doubling the 2006 figure. Also, rural-urban drift in Nigeria is increasing a rate of 3.5% per year, representing one of the highest in Africa, whilst adult HIV/AIDS prevalence rate is at 3.6%, with 220,000 deaths from the disease in 2009 alone (CIA World Factbook 2012). These statistics suggest an increasing aging population Nigeria will be accompanied by increasing responsibilities amongst the elderly in the future.

Many countries in developing world have implemented non-contributory old age pensions (HelpAge International 2012b). Over a hundred schemes are being implemented across the world, the majority of which are in

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1 CIA World Factbook, as at July 19, 2012. Available from http://www.indexmundi.com/nigeria/demographics_profile.html
developing countries (i.e. low and middle income countries). But, most recent regional/state level (as opposed to national level) and pilot non-contributory schemes have been implemented in four SSA countries.

What can we learn from these new schemes? What is their impact on the beneficiaries? And more importantly, how effective are they, particularly in an environment with high poverty levels and multiple demands on increasingly constrained budgets? We propose to address these and other specific questions in the context of the Ekiti State social security scheme for the elderly. Addressing these questions and other related questions will fill important knowledge gaps, particularly for evidence based policy-making for roll-out or expansion, accountability and justifying resources allocation, and informing donor decisions whether to co-fund or otherwise.

2.1. The Ekiti State social security scheme for the elderly

The Ekiti social security scheme is an unconditional, non-contributory cash transfer scheme for the elderly in Ekiti State Nigeria. The scheme was motivated by the government concern for the well-being of the elderly in the state. The concern of the State government was that the majority of the elderly citizens of the state (aged 65 years and above) are unable engage in rigorous economic activities, thereby leaving them vulnerable to social and economic shocks.

The scheme comprises of a monthly cash transfer of N5,000 (approximately $32 USD) for elderly citizens of the state, aged 65 years and above, not receiving any pensions, and whose monthly income is less than N3,000 ($19 USD). According to the State governor, Dr. Kayode Fayemi, the central objective of the scheme is “to improve the living conditions of the elderly citizens in the State and to serve as a poverty reduction strategy through provision of regular income payments.”

A six-month pilot scheme was implemented during October 2011 to March 2012, covering 10,000 beneficiaries in three local governments of the State. Due largely to limited resources at its disposal, the state government plans to roll-out the scheme in phases across the remaining local government areas of the state.

However, there has been no rigorous evaluation of this important scheme, either before it began or at the end of the pilot scheme, to examine its effectiveness on the beneficiary outcomes. Moreover, the roll-out phase was delayed based on the need to sign the scheme into law (to ensure sustainability of the intervention) and to address some problems that emerged from the pilot scheme. Therefore, the proposed evaluation study is timely, as it will provide political support for the scheme (public good value).

A demonstrated impact/effectiveness of the Ekiti scheme is important for certain reasons. Firstly, there is scope to learn from the local and regional context of the scheme. The Ekiti cash transfer scheme for the elderly is the first of its kind at the regional level of government in Nigeria and West Africa. Other State governments in the South West of Nigeria and the Federal government alike are contemplating the adoption of the Ekiti State initiative.

Secondly, the Ekiti State scheme is contentious. Since it is the first of its kind, many people in the State, especially the political opponents considered the scheme as a gimmick by the Governor to garner votes in forthcoming elections. Also, there are concerns about the sustainability of the program. This is because Ekiti State relies largely on the monthly allocation from the Federal government allocation, which accounts for over 75% of the total monthly revenue, whilst the State’s tax revenue base accounts for less than 5% of the total monthly revenue. Other things being equal, the sustainability of the scheme is largely dependent on the flow of funds from the oil-dependent Federal allocation.

Thirdly, accountability is also important. Today, the beneficiaries of the scheme in the pilot phase have been full of praises of the State governor for not abandoning them at old age. But this is insufficient from a resources

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5 See, footnote 4.
allocation perspective. There is need to justify the allocation of scarce resources to the scheme, thereby ensuring accountability to the taxpayers as well as the State parliament.

The overall goal of the proposed study is to inform evidence-based policy making in the context of old age social pensions in Nigeria and SSA generally. To this end, the core research objectives are;

i) To demonstrate effectiveness of the Ekiti State unconditional, non-contributory cash transfer scheme on the beneficiaries;
ii) To examine whether the effect on the beneficiaries and the size of that effect exhibit some pattern of heterogeneity (e.g. by gender or location of the beneficiary); and
iii) To examine whether there are unintended effects, positive or negative, associated with the scheme.

Following from the above, the specific research questions are:

i) What is the impact of the Ekiti State cash transfer scheme for the elderly on the beneficiaries, particularly on their expenditure patterns (e.g. on food and alcohol consumption) and health?
ii) How is the size of the impact on the beneficiaries (if any) differ by gender and location?
iii) Are there any unintended effects associated with the scheme?

3. Policy context

One of the key rationales for a non-contributory social security scheme in developing context relates to the view that a society can be judged by the attention given to its elderly citizens, and that provision of non-contributory social security schemes provides a way to alleviate old age poverty (Dethier et al 2011).

Despite an increased attention being paid to provision of social protection interventions as a poverty reduction strategy, there has been a lack of political will on the part of the federal government of Nigeria (FGN). For example, the draft national policy on the care and wellbeing of the elderly in Nigeria was finalised in 2003. However, the Federal Executive Council of the successive administrations has failed to ratify the draft so that it could be implemented (Asagba 2005).

A recent study by Holmes et al (2012a) examining the potentials for cash transfers in Nigeria reinforces the view that provision of social security in Nigeria generally has been constrained by lack of political will. Existing social security schemes has been limited to conditional cash transfers (CCTs) that implemented mainly by international donor agencies through State departments. There are three CCTs being implemented through the State education sector in three Northern states; Kano, Bauchi, and Katsina. These CCTs are aimed at reducing school dropout amongst girls due early marriage.\(^6\)

There is also the Federal government-run ‘In Care Of The Poor (COPE) program, which was implemented in selected one-third (12) of the States in the federation. The COPE is a CCT program targeting households considered as ‘poorest of the poor’ on the basis of having children of basic school age, female-headed households, and HIV/AIDS affected (Holmes et al 2012b).

However, these studies found that the implementation has been poor; coverage has been very low at 0.001% of the targeted poorest households; and conditionality creates several layers of categorisations, which in turn imposed restrictions on eligibility, thereby excluding the majority of potential beneficiaries. Also, the value of the transfers has been very low, and insufficient to meet the needs of the targeted households. Additionally, the program was implemented only in a third (12) of the States in the federation, based on the six geopolitical zones to which the country is divided. Moreover, the CCTs have not been sustained, as the beneficiary households were not paid the cash beyond one year (Holmes et al 2012b).

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\(^6\) These CCTs are supported by UK department for International Development (DFID), UNICEF and the World Bank (Holmes et al 2012a).
In line with the view that future provision of social protection interventions in Nigeria is more likely to take place at the regional/state level, the studies recommended that (quote):

“....political support should be built at the federal level so that government can take a leadership role in terms of presenting an overarching strategy for social protection, which can then guide states to select and prioritise interventions according to their needs, and fiscal and institutional capacity. This should include a wide variety of different types of cash transfers (and for different groups)"

And that:

“....for social protection to be politically acceptable (at the regional level), States need to have more information and knowledge on the different types of social security instruments available in order to make informed decisions based on evidence. E.g. targeting specific group with specific poverty and vulnerabilities” (Holmes et al 2012, p.50).

These are powerful recommendations for the FGN. However, there has been little, if any, debate on the appropriateness of such conditional versus unconditional non-contributory cash transfers, the different types of cash transfer schemes, and targeting options that might be suitable at the State level such as old-age pensions.

According to Asagba (2005), one of the reasons for the lack lustre attitude of the (FGN) to the plight of the elderly in Nigeria is because there have been little high quality research studies to sensitise the government and policy makers alike into initiating debate towards developing a national policy on social protection such as social security schemes targeted at the elderly, particularly those in the informal sector.

In this context therefore, we see our proposed research in contributing not only to this policy debate but also support evidence-based policy making towards a national framework for social protection in Nigeria. This is achievable through a demonstration of the effectiveness of the intervention through rigorous impact evaluation.

In fact, in our communication with the National Planning Commission, the Deputy Director, Social Development Department of the commission, Mr. Abraham Taiwo states about our proposed research (quote):

"Your proposed research is timely. We had zonal workshops on developing effective social protection policy framework for Nigeria in 2012 with the support of UNICEF. The exercise is still on-going as we intend to harvest more ideas from wider stakeholders, especially the academic community." (Supplementary Doc 4, paragraph 2).

Finally, the proposed research will be carried out in collaboration with the implementation agency. This collaboration will provide useful and direct information to those who implement the scheme. The officials of the implementing agency will benefit not only in terms of policy-making, but also in terms of building capacity in the government department.

4. Literature review and scientific contribution of the research

4.1. Technical literature

The technical literature presented here provides an overview of key issues in undertaken impact evaluation, particularly to examine the effectiveness of social protection schemes in a developing context and the major methods that are used to address these issues.

An impact evaluation exercise seeks to examine the effectiveness of a program, intervention or the impact on the intended beneficiaries. Results from an impact evaluation exercise provide a tool to aid evidence-based decision making. In the context of social protection intervention, an impact evaluation seeks to address the question of whether the intervention makes any impact on the beneficiaries and the size of that impact (e.g. Gertler at al 2011, Duflo et al 2006).
If researchers can perfectly observe the outcome of interest before the beneficiaries receive the intervention, then the impact of the intervention can be estimated by simply comparing the counterfactual outcomes of the beneficiaries without and with the receipt of intervention. In this case, any changes can then be directly attributable to the intervention. A key problem however is that we do not observe the counterfactual; that is, the pre-intervention outcome of the beneficiaries. In practice, a generally acceptable solution to address the counterfactual problem is to treat it as a missing data problem, which then allows determination of an appropriate comparison group in the population of eligible beneficiaries (e.g. Shahidur et al 2010). Thus, in estimation of the impact, a double difference method can be used to compare the difference in the change in the outcome for treatment and comparison groups (White 2012).

Another problem to address in impact evaluation relates to the problem of selection. Selection problem arises largely because beneficiaries of an intervention are a self-selected group, rather than being randomly selected from the entire population. Selection bias arises if the factors determining participation in a program also correlate with the outcome of interest. Generally, experimental and quasi-experimental designs are used to address the selection problem (White 2012; Gertler at al 2011; Shahidur et al 2010; Duflo et al 2006).\(^7\)

Experimental design solves the selection problem through randomised assignment of the intervention in which the sample of eligible beneficiaries are randomly assigned into treatment and control groups usually undertaking before the intervention commences.\(^8\) In the absence of a randomised assignment, quasi-experimental designs are used, which relies on statistical methods to construct the control group. Such methods include instrumental variable techniques, propensity score matching, regression discontinuity design, etc.\(^9\)

Amongst the two designs approaches, the experimental approach of randomised assignment of the treatment is generally considered the most rigorous such that in that in demonstrating cause-and-effect relationship between intervention and outcomes of interest, it adequately produces estimates of the counterfactual and accounts for selection bias, thereby ensuring both internal and external validity of the impact evaluation provided that the evaluation sample is sufficiently large (e.g. Gertler at al 2011). The issue of the appropriate counterfactual is addressed to the extent that the beneficiaries in the treatment group are as similar as possible to those in the control (comparison) group at the baseline, such that the only difference between the two groups is the receipt of the intervention (internal validity).

Finally, external validity is ensured to the extent that the evaluation sample on which the randomised assignment is based, adequately represents the population of eligible beneficiaries, such that results of the impact evaluation are generalizable to that population (e.g. Gertler at al 2011; Duflo et al 2006).

We proposed study, the basic methodology will be the experimental design based on random assignment of eligible beneficiaries into treatment and control groups. Using the RCT approach is appropriate since the actual implementation of the roll-out phase of cash transfer scheme has not commenced.

### 4.2. Review of evidence

Several previous studies have examined the effectiveness of non-contributory cash transfer programs for the elderly in developing countries\(^10\). Most of these previous studies emanated from the non-contributory social security schemes implemented in Latin America (e.g. Dethier et al 2011; Barrientos 2003; Schwarzer and Querino 2002; Bertranou and Grushka 2002), and the South Africa (SA) old age pension program (e.g. Duflo 2000, 2003; van der Berg 2002; Edmond 2006, Edmond et al 2005; Case and Deaton 1998). The findings from these studies have been generally favourable to the old-age pension schemes in developing context. The remaining part of this subsection provides a summary of the key results and their implications for our proposed research.

A key finding from the previous studies is that the schemes reduce old age poverty and inequality in beneficiary households, and provide a means of investment in human and social capital. The SA program showed

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\(^7\) Much of the review presented here relies on the studies cited here.
\(^8\) Randomised assignment of the treatment is also known as randomised control trial (RCT).
\(^9\) The studies cited above provide comprehensive treatment of these quasi-experimental designs.
\(^10\) For a comprehensive summary of previous studies, see Barrientos and Lloyd-Sherlock (2002) and Aguila et al (2010).
that in a society where a significant proportion of its elderly citizens receive social old-age pensions and the benefit level is sufficiently high; such pensions will play a very crucial role in the reduction of poverty (van der Berg 2002). Dethier et al (2011) examined the impact of a minimum pension on old age poverty and its budgetary cost in 18 Latin American countries. They found that the pensions lead to significant reduction in both relative and absolute poverty and at reasonable cost. In relative terms, the reduction ranged between 17% in Colombia to 75% in Costa Rica, whilst the reduction ranged between 2% in Brazil to 24% in Costa Rica in absolute terms.

Another key result from the previous studies, especially those emanating from the SA program is that income received from a non-contributory cash transfer program has important redistributive effects, as the beneficiary households can use their benefits in different ways, including food consumption, education of children, household labour supply, saving, etc. (e.g. Duflo 2003; Case and Deaton 1998). This suggests that beneficiary outcomes can be examined on various dimensions of elderly welfare or multiple beneficiary outcomes.

Additionally, a consistent finding from previous studies is that the impact of old-age pensions tends to be gender sensitive. For example, Duflo (2003) focused on the health and nutrition status of the grandchildren in beneficiary households. Like many others such as Carvalho (2008), Duflo found differential impact by gender. If the beneficiary was a woman, the impact was large on the outcomes (nutrition status) for girls than for boys. There was no effect if the beneficiary was a man. Carvalho (2008) found similar gender effects in the study of a Brazil social security reform.

However, the earlier studies suffer from important shortcomings and methodological limitations. Firstly, the majority of the studies used probit models to estimate the conditional effects of non-contributory pension schemes on the probability of an individual being poor and belonging to a household with a pension beneficiary. The inability to account for potential endogeneity such as may relate to income source is a key limitation in these studies. In some studies, household level information are used to compare beneficiaries and non-beneficiaries. However, receipt of benefit is a choice variable, and as such beneficiaries are a self-selected group into the program. This introduces selection bias into the analysis, if it is not accounted for (Aguila 2010). Selection bias arises if the eligibility criteria are correlated with outcomes.

Secondly, a common feature of the previous studies is the tendency to draw inferences on individual children outcomes (e.g. child nutritional status, child labour supply and schooling) based on information observed at household level (e.g. Cavalho 2008; Edmonds 2006; Duflo 2003). This is largely because receipt of benefit is conditional on these child level outcomes. However, such an analysis implicitly assumes that individual children in those households have the average household characteristics. The findings from such studies are susceptible to bias, arising when outcomes observed at individual level is inferred from the group to which those individuals belong (here household). Receipt of the pension is observed at the household level and outcomes are observed at the individual children level. Children are nested within households, which imposes a correlated structure on the data. In this case, common statistical estimators such as OLS or IV will be inefficient as the observations on children within the same households are potentially correlated, rather than completely independent. Hence, such models are misspecified, and as such, inference and policies based on incorrectly specified models may be misleading.

Specifically, children’s outcomes tend to occur in various contexts of which the household is just one. In addition the household environment, children’s outcomes are also influenced by factors such as individual children’s own preferences and the school environment. The implication is that the observed child level outcomes may be confounded by the variations that are unobservable at the household level, and to the analyst. Thus, it is important to allow for the contribution of child and household level characteristics to variations in children outcomes.11

Thirdly, where the entry or eligibility requirement such as age differs by gender as in SA program, the basis for comparison of evaluation results between men and women is unclear and induces bias into the analysis. For example, the SA program was generally biased towards women (i.e. entry at aged 60 for women and entry at aged 65 for men) (Duflo 2000). In the absence of a control group, comparing impacts on the basis of gender induces sampling bias (a form of selection bias) if the unobserved factors (e.g. degree of vulnerability) underlying being ‘treated’ now and delayed ‘treatment’ also affect the observed outcomes.

11 This issue provides a basis for using a multilevel analysis approach, which we are proposing in future research. For more on multilevel analysis, see, Hox 2010, Firebaugh 2001, Piantadosi et al 1988).
Additionally, where other complementary programs have accompanied the intervention being evaluated, it is important to account for potential contamination of the observed outcomes. For example, the SA program was being undertaken at the same time as other complementary programs such as the child maintenance benefits for parents (Van der Berg 2002). These other programs could have contaminated the observed child level outcomes.

More recent studies have used experimental approaches to examine the effectiveness of non-contributory pension schemes. Aguila et al (2010) used quasi-experimental design to examine health and well-being effects of non-contributory old age pension scheme in the State of Yucatan, Mexico. To our knowledge, this is the only study that has looked at the direct impact of a regional level, unconditional and non-contributory old age pension scheme on the beneficiaries. But then it was unable to undertake randomised assignment design.

An important finding from this study however, is that significant treatment effects of a non-contributory old age pension scheme can be achieved even within a short-period (6 months) following implementation, particularly where then beneficiaries spend their benefits on basic needs, such as food and medicines. The authors also found that a non-contributory old age pension scheme can also result in unintended effects (positively or negatively). Specifically, they found significant increase in the number of cigarettes smoked amongst the beneficiaries, but a decline in alcohol consumption.

Although recent studies have tended to use experimental designs, the use of randomised evaluation approach developing context is missing. Thus, the proposed research offers a rare but unique opportunity to examine the effectiveness of regional level, unconditional and non-contributory old-age pensions in a developing context, using the standard methodology of randomized intervention. As indicated in the previous subsection, of the many available methods, randomised evaluation is generally considered ideal and the most rigorous to produce the most accurate and unbiased results.

5. Methodology

5.1. The experiment/intervention to undertake

The experiment/intervention will be undertaken in collaboration with the Ekiti State Ministry of Labour, Productivity, and Human Development. The implementation agency is the Directorate for Social Security within the ministry. The design of the intervention presented here has been jointly agreed with the officials of the implementation agency.

The intervention we consider is the Ekiti State social security scheme for the elderly. The scheme is an unconditional, non-contributory cash transfer targeting the elderly aged 65 years and above, citizens of the State, not receiving any pensions, and whose monthly income is less than N3,000 (approximately $19 USD). These eligibility criteria have been stipulated by the implementation agency. The scheme will provide each beneficiary with a monthly cash payment of N5,000 (approximately $32 USD).

Ekiti state comprises of 16 Local Government Areas (LGAs). The pilot program which took place during October 2011 to March 2012 targeted elderly citizens in five LGAs. The first roll-out phase is designed for 10,000 beneficiaries in another five of the remaining 11 LGAs. In order to avoid contamination, those five LGAs covered under the pilot program will be excluded from our randomised intervention. This is consistent with the implementation agency’s design for the roll-out.

For the purpose of our study, the random assignment will take place in three stages. The Ministry of Labour, Productivity and Human Development already has up to 52,000 potential beneficiaries in their waiting list (called the Register). The Register represents the population of eligible beneficiaries from which the evaluation sample will be drawn. Figure 1 illustrates the stages in the random sampling and randomised assignment of treatment and comparison groups.

12 The first phase of the role out was initially designed for 20,000 which the initial versions of our proposal reflect. However, this has been reduced to 10,000 beneficiaries for reasons that are not clear to us. The present version of the research will reflect this new figure.
As the figure shows, the first stage of randomization will be to randomly select 10,000 eligible beneficiaries constituting the evaluation sample from the Register, using the RAS computer program developed for parallel group control trials (Saghaei 2004). In the second stage, the 10,000 potential beneficiaries in the evaluation sample will be randomly assigned to ‘treatment’ (i.e. eventual beneficiaries) and comparison groups at baseline, comprising 5,000 persons on each side. Beneficiaries will be informed at this stage, not at the previous stage. This three-stage process ensures both internal and external validity (Gertler et al 2011). However, we are concerned that the 10,000 target by the government might be cost ineffective in terms of the costs associated with field surveying. In Section 6.2, we discuss the efficient level of sample size and statistical power.

Figure 1: Stages in ransom sampling and randomised assignment.

5.2. The process of change

The process of change describes the causal pathway through which the beneficiaries of the Ekiti state cash transfer scheme are expected to benefit from the scheme. The process of change as explained here has been jointly determined in collaboration with the officials of the implementation agency. The central objective of the scheme is to improve the living conditions of the elderly citizens of the state. The elderly citizens of the state are considered the most vulnerable group who are unable to undertake rigorous economic activities in old age.

In line with the objectives of the scheme as detailed by the implementation agency, the main benefit will accrue via improved living conditions of the beneficiaries. This will arise from higher income made possible by the cash transfer to meet their daily nutrition and health needs (e.g. increase expenditure on food and money for medicines), and ultimately better health status. This should result in more elderly people being able to feed themselves with less recourse to family members, neighbours or distant relations. Overall, this will lower elderly poverty across the LGAs and in the State generally.

Table 1 shows the causal pathway underlying the nutritional status and health status of the elderly beneficiaries. Given that nutrition from food consumption is a basic need: (i) the elderly beneficiary of the Ekiti State cash transfer scheme is aged 65 years and above, and receives the sum of N5,000 in cash every month; (ii) the elderly beneficiary makes a decision that part of his economic transfer will be spent on food for the household; (iii) food purchases increase; (iv) the elderly beneficiary consumes purchased food; (v) frequency of food consumption by the elderly beneficiary increases leading to improvement in the nutritional status (in terms of higher calorie intake); and (vi) the beneficiary elderly is healthier and rates his/her health status higher.

13 It is also possible that the beneficiaries share part of their cash benefit with other household or family members. However, a few interviews conducted by journalists and published in Nigerian dailies shows that most of the beneficiaries expended the money received to buy food.
However, it is also possible that the beneficiary diverts part of the higher income into health damaging consumption such as increased volume of alcohol consumption or increased frequency of smoking. Alternatively, the increase in income may displace other economic activities (e.g. farming) normally undertaken by the beneficiary, so that the beneficiary becomes dependent on the cash transfer. In this case, the scheme may also have an unintended effect on the beneficiaries (positive or negative, depending on the dimension of their consumption decisions).

### 5.3. What potential problems do you foresee and how will you overcome these?

Our research team will collaborate in the design of the intervention and random assignment of the potential beneficiaries into treatment and control groups. We will be involved also in field activities for the collection of baseline data and during implementation as agreed with the implementation agency and in the collection of both baseline and endline data.

Working with the implementation agency provides enormous scope for the roll-out and future scaling-up of the scheme. It also brings risks in terms of political uncertainty and bureaucratic inflexibility. However, the agency has demonstrated its commitment to collaborate with our research team by nominating a senior staff in the person of Mrs. Florence Adebayo, Director of Community Development to work directly with our research team on this project. Her working with our research team will minimise the bureaucratic challenges that may arise and should go a long way towards ensuring a successful evaluation project.
5.4. Modeling and testing

5.4.1. Model / ideas to test

The basis of the proposed evaluation study is to develop hypotheses about what is going on with respect to the Ekiti State social security scheme for the elderly. The hypotheses that the research study aims to test include:

(i) Providing a monthly cash transfer of N5,000 for the elderly in Ekiti State will have a significant impact on the nutritional status and health of the beneficiaries. This may act through a change in patterns of food consumption of the beneficiary made possible by higher income and resources to meet their immediate calorie needs which also impact on their health.

(ii) The size of the positive effect that the monthly cash transfer of N5,000 for the elderly in Ekiti State will have on the nutritional status and health will be the same irrespective of gender or location of the beneficiaries. This hypothesis relates to; (a) whether the elderly beneficiary is a male or female; and (b) whether the beneficiary lives in a rural or urban area. This hypothesis should be rejected if (a) consumption patterns differ significantly between elderly male and female; and (b) if the cost of living is relatively higher in the urban relative to the rural areas in the State. A rejection of the later may inform the need for a cost of living adjustment for the elderly living in urban relative to rural areas.

(iii) Providing a monthly cash transfer of N5,000 for the elderly in Ekiti State will have no unintended effects (positive or negative). The basis of this hypothesis is that the utility of the cash transfer to the beneficiaries is largely a function of what the cash benefit is expended on, which is important for intervention policy. An unintended effect may arise, hence a rejection of this hypothesis, if beneficiaries divert a significant proportion of their cash benefits into health-damaging lifestyles such as increased consumption of alcohol. Excessive consumption of alcohol has been associated with cardiovascular (heart) and liver diseases and which are prevalent amongst the elderly. This hypothesis underlies the importance of education of the elderly beneficiaries on healthier lifestyles such as increased fruit and vegetables, as part of the intervention to improve the living conditions.

5.4.2. Empirical methods to employ

The identification of the impact of the unconditional cash transfer scheme for the elderly relies on the random assignment of the eligible beneficiaries into treatment and control groups. Thus, we propose estimation of two models: (i) intention-to-treat (ITT) model, which identifies the mean difference between the elderly in the treatment and control groups; and (ii) the treatment-on-the-treated (TOT) model, which identifies the impact of the scheme on the elderly beneficiaries.

Based on the randomized design of the intervention and in the absence of other issues, such as possible spill-over effects from treated beneficiaries to others and attrition arising from deaths or relocation, the basic specification of the ITT model is of the form:

\[
y_{it} = \alpha + \beta T_i + \sum_{k=1}^{K} \beta_k X_{ki} + e_{it}
\]

Where: \( y_{it} \) is outcome of interest for individual \( l \), and \( t \) is time, \( t = 1, 2 \); \( \alpha \) is the expected mean outcome without treatment; \( T_i \) is an indicator variable for the treatment (treatment dummy), taking the value of one if the sample member \( l \) is randomized into the beneficiary (treatment) group and value zero otherwise; \( X_{ki} \) are a K baseline individual characteristics, included as controls to reduce unexplained variation (residual variance); and \( e_{it} \) is an error term assumed to be independent and identically distributed (i.i.d.) (i.e. independent across sample members within
experimental groups, with mean zero and constant variance). $\beta_1$ is the key parameter of interest, capturing the average effect of intent-to-treat. It represents the difference in expected outcomes for the treatment and control groups (i.e. average scheme impact). We will estimate equation (1), using survey estimation techniques, including sampling weights.

However, largely because not all the elderly citizens are eligible due to eligibility criteria imposed by the government, participation in the scheme is therefore endogenous, as it is a function of observed (e.g. current income and family circumstances) and unobserved factors which may correlate with the observed outcome of interest. To correct for this potential endogeneity, we propose an instrumental variable estimation, using the treatment and control status of the elderly individual in the sample as instruments for scheme participation. We will examine in detail the extent to which the treatment and control status serve as valid instruments.

In estimating the TOT model therefore, we will substitute individual level treatment status indicator in (1) for an endogenous indicator for the elderly living condition (or any other appropriate indicator), and then instrument with random assignment at the individual level. Thus, the two-stage least square (2SLS) model to estimate can be specified as follows;

Let $L_{it}$ be an endogenous indicator, the first stage will estimate the equation:

$$L_{it} = \alpha + \beta_1 T_{it} + \sum_{k=1}^{K} \beta_k X_{ki} + e_{it}$$

(2);

In the second stage, the predicted values from equation (2) $\hat{L}_{it}$, are substituted for $T_{it}$ in eq. (1):

$$y_{it} = \alpha + \beta_1 \hat{L}_{it} + \sum_{k=1}^{K} \beta_k X_{ki} + e_{it}$$

(3)

Again, the key parameter of interest is $\beta_1$, which captures the average impact of the scheme on the elderly in the treatment group.

For a given relevant local government, either rural or urban, we observe both treated and untreated elderly. Thus, other things being equal, Hypothesis (i) can be tested on $\beta_1$. In section 5.4.3 below, we discuss how potential problems such as spillover effects can be accounted for.

We are also interested in the impact of the cash transfer scheme on specific sub-groups in the elderly population in the State. That is; by gender and location (Hypothesis (ii)). These will be estimated by interacting the treatment indicator with the de-meaned measure of the dimension of interest. For example, suppose that the variable gender takes the value one if the elderly beneficiary is a male (gender=1) and value zero, otherwise. Then, the $\beta_{1gender}$ is the treatment effect parameter on the interaction term $T_{it}gender$, which captures the average impact of the scheme on the elderly male beneficiary compared to elderly female. For Hypothesis (iii), we will specify an indicator of a health risky lifestyle (e.g. excessive alcohol consumption or smoking) as a function of receipt of cash transfer $T_{it}$ and controlling for other covariates. A positive coefficient on the treatment impact will suggest an unintended effect of the intervention.

5.4.3. Potential empirical problems and how they will be addressed

Three potential empirical challenges are envisaged. The first relates to possible spillover effects from treated individuals to others that may include individuals in the control group. The second challenge relates to attrition arising from loss of subjects to follow-up due to say, death. The third relates to potential anticipation effect arising from when individuals in the control group change their behaviour in anticipation of receiving the intervention. Generally, the nature of these problems may not be clear a priori.
i) **Spillover effect:** In Ekiti state, it is part of the culture for adults to identify with their age-group peers. Such age-related peer groupings for the elderly is likely to comprise both the beneficiaries and those who have not benefited. Also, spillover effects may arise from the effects associated with local provision of retail outlets or facilities. Now that the elderly have more money to spend, the prices of goods that the elderly tend to buy may increase (see, Aguila et al 2010). Spillover effects can also arise from transfer or gifts of cash from beneficiaries to friends who did not receive the benefit. A proportion of the cash received by beneficiaries may be given to other members of the family such as spouse or children. Previous studies indicate that spillover effects may considerable (e.g. Angelucci and Giorgi 2009). To address the spillover effect, we can introduce a spillover effect parameter of the treatment $T_{i}^{S}$, which takes the value zero if there is no treatment. Thus, equation (2) can be rewritten as:

$$y_{it} = \alpha + \beta_{i} T_{i} + \delta T_{i}^{S} + \sum_{k=1}^{K} \beta_{k} X_{ki} + e_{it} \tag{1a}$$

where $\delta$ is the parameter capturing the spillover effect. However, the spillover effect is not identified in the standard ITT framework in equation (3). That is; in a complete randomisation within a community, town, or local government cannot identify spillover effects since $T_{i}$ and $T_{i}^{S}$ may be different (see Aguila et al 2010).

One practical solution to the spillover effect problem is to change the level of randomisation. Thus, for the purpose of this study, we will adopt a method similar to that used in Miguel and Kremer (2004) by randomise at the level of local government. In this case, a relevant local government gets assigned randomly into the beneficiary group and examine the spillover effect on the non-beneficiary local government. Thus, we will be able to estimate the term $\beta_{i} + \delta T_{g_{i}}^{S}$, where the subscript $g$ indicates a non-beneficiary local government, and the term capturing the total treatment impact (own effect plus spillover effect) on a local government, even if there are treatment externalities amongst individuals within the local government. In this approach, we will know the exact location or LGAs of all the beneficiary and non-beneficiary individuals. We may then use the geographical distance (e.g. in Km) between local governments as a measure of the intensity of spillover and thus ascertaining the importance of this problem.\(^{14}\)

ii) **Attrition:** The problem arising from potential attrition can be addressed by treating attrition as a missing endline data. In this case, the issue becomes one of determining whether data are missing at random by investigating the sources and the size. Data will not be missing at random if the unobserved factors influencing the probability of death also influence the outcome of interest. We do not envisage that attrition in endline data will be because of the intervention. In order to minimize attrition in the follow-up survey due to other factors such as death, efforts will be made to track and locate the potential beneficiaries who were interviewed at the baseline.

iii) **Anticipation effect:** We envisage that anticipation effect may arise as both the treatment and control groups are randomly drawn from the waiting list maintained by the implementation agency. The waiting list approach becomes necessary because resources are limited to include all the potential beneficiaries at the same time. Thus, the eligible elderly citizens in the control group are merely waiting to receive their cash transfers in the near future, not that they are completely excluded from benefiting from the scheme.

In the above situation, it is possible that the eligible elderly citizens in the control group react or change their behaviour in anticipation of receiving the intervention. Such a change in behaviour may affect the outcomes of interest. For instance, in anticipation of receiving the transfer, an eligible elderly may stop

\[^{14}\text{Note that randomisation at the LGA level is consistent with Figure 1, since not all of the LGAs will be included in this phase.}\]
other sources of income. It is also possible that in anticipation of receiving the intervention in the next phase, the elderly reduce their food intake in order to be given priority.\footnote{This may be the case in the Osun State pilot program, where it was alleged that the State government delayed the pilot implementation for some months, leading to starvation to death of 40 registered beneficiaries by the time the government commenced implementation. See, “40 Elderly Persons Die Of Starvation While Awaiting Allowances”, News Naija, August 12, 2012. http://news.naij.com/4900.html}

According to Attanasio et al (2005), an implication of anticipation effect is that a direct comparison between the treatment and the control groups will lead to an overestimation of the impact of the cash transfer. A common approach to address this empirical issue as suggested by Attanasio et al (2005) is to first estimate a structural model to exploit other sources of variations on the outcome of interest, based on an examination of the fit of the structural model under several assumptions about when individuals in the comparison group are expected to receive payment.\footnote{The authors found no anticipation effects in their study.} The experimental design is then use for validation purpose only (see also, Todd and Wolpin 2006).

In our proposed research, we will adopt similar approach but we are cautious about reducing the experimental design to mere validation of a structural model. The experimental design provides the basis for the randomised evaluation in the first place. Rather than estimating a structural model explicitly, we will treat anticipation as a confounding factor on the observed outcomes. In this case, we propose a two-step approach leading to generating inverse probability weights or what we call `anticipation weights’ to be applied to our estimated equations (Equations (1) and (1a)).\footnote{For a theoretical treatment of inverse probability weighing in the context of missing data, see Wooldridge (2007). An important usefulness of inverse probability weights is to adjust for confounding, and by extension, selection bias (see, Cole and Hernan 2008).

In the probit regression, the inverse of standard normal distribution of the probability of being a beneficiary will be modelled as a linear combination of some \( m_j \) predictors. This will allow a calculation of the predicted probability of being selected into the beneficiary group on the predictors, using the cumulative distribution function of the standard normal.}

In the first step, we will specify a probit model to estimate the probability of being selected into the beneficiary group on a set of covariates. Probit regression is often used to model binary outcome variables (e.g. Green 2008). The general form of the probit model to be estimated can be written as:

\[
\Pr(z_j = 1 \mid m_j) = \Phi(m_j, \eta) \tag{4}
\]

where \( \Phi \) is the standard cumulative normal distribution. The data contain \( j \) elderly citizens, each of whom either is in the treatment group (\( z_j = 1 \)) or otherwise. \( z_j \) and \( m_j \) are the observed data, where \( z_j \) is the outcome variable, taking the value one if the elderly citizen is a beneficiary (or in the treatment group), and zero for other individuals (control group), and \( m_j \) is a vector of covariates assumed to predict the probability (\( z_j = 1 \)).\footnote{In the probit regression, the inverse of standard normal distribution of the probability of being a beneficiary will be modelled as a linear combination of some \( m_j \) predictors. This will allow a calculation of the predicted probability of being selected into the beneficiary group on the predictors, using the cumulative distribution function of the standard normal.} \( \eta \) are a vector of parameters to be estimated. The coefficients on \( \eta \) measure the effect or association of the included \( m_j \) covariates on the probability of being in the beneficiary group. The model to be estimated includes an error term, assumed to be independent and identically distributed (i.e. the error term and the \( m_j \) are not correlated).

The \( m_j \) covariates will include demographic variables (age duration - measured as number of days above 65 years, sex), socioeconomic characteristics (marital status, educational level), household (number...
of adult, children, living alone), major occupation, lifestyles (index of malnutrition, health status) and labour supply (hours working in a week); non-pension income. A key variable of interest is age duration.\textsuperscript{19}

Having fitted the probit model, the second-step will involve obtaining the \(j\)th individual level anticipation weights as the inverse of the fitted/predicted probabilities. As stated earlier, the weights will be applied to our ITT and TOT models. In essence, the impact can be considered as a weighted impact.

Finally, largely because inverse probability weighting is sensitive to model specification, various specifications of the model will be estimated and Lagrange multiplier (LM) tests will be used to select the best model (Davison and MacKinnon 1982).

6. Data requirements and sources

Ideally, experimental evaluation requires two sets of primary data collected in field surveys on the same set of individuals who have been randomly assigned into treatment and control groups. The first set of data is the baseline data collected at the start of the program whilst the endpoint data are collected at the end of the study period. For evaluation studies using RCTs methodology such as ours, a baseline data are required to enable verification of the equivalence or examination of the differences in characteristics (if any) between the treatment and control groups, and to provide information on the starting point of the treatment and control groups. An endpoint data collection is scheduled for 12 months after the intervention. During the course of the study, we will also update the survey questionnaires so that for the endpoint survey the same set of questions are asked the same individuals in the study sample.

The remaining part of the section discusses the data collection methods and specific data needs in greater detail. This includes definition of baseline variables and outcomes of interest and the list of targeted variables.

6.1. Data collection methods

6.1.1. Will a baseline data be collected or will you use existing data for the baseline?

Our research team has received the approval of the implementation agency to access the Register containing minimum information on the population of eligible beneficiaries. This database consists of 52,000 eligible beneficiaries. However, the information contained in the database is very minimal and are insufficient to address our research questions. For example, the database does not contain any of the key outcomes of interest. Thus, the existing baseline data through incomplete, will form the basis for the first stage of the randomised assignment relating to random selection of the evaluation sample (see Fig.1). Following random assignment of the potential beneficiaries into the treatment and control groups, the full baseline survey will be carried out. The sample to be studied will represent the population of the elderly 65 years and above, who are citizens of the State, not in receipt of any pensions, and whose monthly income is less than N3,000 (approximately $19 USD) in 11 LGAs of the State.

6.2. Sampling design, sample size and statistical power

As discussed previous in section 5.1 and illustrated in Fig. 1, the evaluation sample of 10,000 will be randomly selected from the population of all eligible beneficiaries (52,000). Though this sample size is large enough to ensure 95\% confidence limits and at any desired level of statistical power, it may be cost ineffective in terms of survey costs.

\textsuperscript{19} The implementation agency contends that once a beneficiary drops out due either to death or migration, he/she is replaced by a relatively older person on the waiting list. For example, a 75 years old person is more likely to be selected ahead of a 71 years old person, other things being equal. The former has a higher number of days from the 65\textsuperscript{th} birthday than the later.
Following Cohen (1988) therefore, for a minimum effect size of 0.1, the desired significance level of 0.05, and statistical power of 0.95, the sample size is 1,289 each way, making a total of 2,578.

The total sample size can be increase to 3,000 (1,500 each way) to allow for potential attrition that may arise from death of beneficiaries or relocation outside of the State. Thus, in the second stage of randomization, we will randomly assign 3,000 potential beneficiaries (from the initial 10,000) into treatment and control groups. We have used the G-power v3.1.5 to make this calculation (Faul et al 2007). We resort to a directly calculation here, as there are no previous studies from which variability (e.g. mean and standard deviations) in an outcome variable of interest can be obtained to calculate the sample size and associated statistical power.

Finally, in order to validate the sampling design, we shall compare the average characteristics of the treatment and control groups at the baseline. Given the random assignment to treatment, in the absence of the unconditional cash transfer scheme, we should not expect more differences between the treatment and control groups than can be ascribed simply to chance.

6.3. Key data to be collected (and how this will be done)

Data collection will be conducted in collaboration with the field officials of the Directorate of Community Development, the arm of the implementation agency in charge of disbursement of cash payment to beneficiaries, monitoring and data collection. Mrs. Florence Adebayo, who heads this directorate, has been detailed to work directly with our research team in this area.

Following randomization, a baseline survey of the treatment and control groups of the elderly will be conducted. A follow-up (endline) survey will be conducted on both the beneficiaries and non-beneficiaries at the end of 12 months of the intervention. The survey will collect data on the same set of information as in both the registration database and the complementary baseline survey.

Both the baseline and endline surveys will collect self-reported data as detailed in Table 1. For the purpose of our research, the Director of Community Development, Mrs. Florence Adebayo who is working with us in the project will coordinate the field surveys in conjunction with two members of our team, Dr. Adaku Ezeibe – who is an expert in field surveys, Kafilah Gold and Olusegun Sotola. They will have responsibility for the survey, logistics and quality control. Those to be surveyed are the 10,000 that will be randomly selected from the official waiting list.

Data will be collected at two levels: individual level and household level. Individual level data comprise demographic and socioeconomic characteristics of the individual, self-assessed general health, health risky behaviour, expenditure and consumption patterns, and labour supply. Data on nutrition status (as measured by calorie intake from food consumption and Mid Upper-Arm Circumference (MUAC))\(^2\). On the other hand, household data comprise household size, family/household structure, children labour supply, and living arrangements. The list of data to collect is jointly agreed by implementation agency and our research team. Table 1 provides details of the data to be collected, description and the rationale for the particular data. The variables outlined in the table have been agreed with the implementation agency.

6.3.1. Food consumption data

Food consumption data will be collected at the individual level covering 105 food items as shown in Babatunde et al (2010). Data will be collected through personal interview with the aid of food questionnaire focusing on the type and quantities consumed. We will use a 7-day recall to obtain data on the type and quantity of food that the individual elderly consumed. The quantity of each food consumed will be converted into calories using the locally available food

\(^2\) The upper-arm circumference is often used to measure the extent of malnutrition in the elderly (e.g. HelpAge International 2012)
composition table developed for South West of Nigeria by Oguntona and Akinyele (1995). Finally, the aggregate value of calorie intake will be divided by the 7-day recall period to give daily calorie intake. The calorie values will be validated by the MUAC measures.

Alternatively, we may use the following formula for the conversion (Orewa and Iyanbe 2010):

\[ C_i = \sum_{j=1}^{n} A_{ij} B_j \]  

(5)

where \( C_i \) = daily calorie (Kcal) intake level of the \( i^{th} \) individual; \( A_{ij} \) = the weighted average of daily intake of food \( j \) by the \( i^{th} \) elderly individual; and \( B_j \) = standardised energy content of the \( j^{th} \) food.

7. Consultation for policy influence and research communication/dissemination strategy

The value of an impact evaluation depends on how its findings are communicated and used to influence policy. Table 3 shows our research communication strategy and policy influence outreach. As shown in the table, already we have engagements with stakeholders at both the Federal (national) level, State government level, and at the International level. Our efforts so far had yielded positive response from these stakeholders. Such high level engagements with policy-makers and influential stakeholders will result in a direct take-up of the findings to other decision-making process with greater support of stakeholders, such as in expansion of the scheme. Supplementary documents (Supplementary Doc 3 and Doc 4) attest to the support of the key stakeholders.

In addition to those outlined in the table, other stakeholders and potential users of our research findings include:

(i) Other State governments in Nigeria, particularly Osun State Government. The Governor has signified intention to adopt the Ekiti State Cash Transfer Scheme for the ‘vulnerable’ in his state.

(ii) International development partners or NGOs and potential donors and co-funders.

(iii) International research and academic community – to add to evidence base.

(iv) Ekiti State indigenes in the Diaspora (e.g. Ikere Development Forum) – are eager to know whether the scheme makes an impact on the beneficiaries.

(v) The media

We have an ongoing consultation and collaboration with the implementation agency, Ministry of Labour, Productivity and Human Development, where the Director of Social Security, Mrs. Olabisi Fatoba has given approval for collaboration of the implementation agency in the project. This led to the nomination of the Director of Community Development, Ekiti State Local Government Commission, Mrs. Florence Adebayo, to work directly with our research team on this research.

To date, our collaboration with the implementation agency has resulted in choosing the research questions and the expected outcomes. This ensures that their needs are considered. They were also consulted on the proposed randomised evaluation to which they hope to adopt in future selection of beneficiaries. We have also promised to update them on the funding decision points.

7.1. Communication and dissemination of research findings:

Communication and dissemination will take various forms including:

i) Stakeholder engagement and policy workshops, featuring a focused group discussion where findings of the research are presented and then discussed from policy making perspective. The National Planning Commission and the implementation agency have both indicated intention for such an engagement. Ideally,
we hope to develop this aspect of dissemination into the qualitative aspect of the research. We will discuss this with the implementation agency.

ii) Regular communication in the form of bi-monthly progress reports, to be presented in non-technical formats. A meeting of the project team and the staff of the implementation agency and selected stakeholders will complement these reports.

iii) Participation in local/international conferences. At a meeting in London during February 2013, the HelpAge International expressed an interest in hosting such a conference for our research.

iv) Publications in international peer reviewed journal. Our targeted journals are The Economic Journal and Journal of Development Economics.

v) Dissemination through HelpAge International blog space and newsletters. This will be on a regular basis and the newsletter disseminates information about old age pensions across the world.

vi) IPPA working paper and publication of small articles in National dailies and are also distributed through IPPA mailing list.

8. Research team members and expected capacity building

In the evaluation study undertaken for Ekiti State government during 2009-2010 on the effect of early child care program on school enrolment and productivity of mothers (see 8 below), one of the recommendations made by the independent reviewer of the final report was that our research team at IPPA did a tremendous job and suggested that we further improve our capacity to maintain expertise in impact evaluation as these are needed in Africa. As at now, only one amongst our researchers at IPPA (Dr. Damilola Olajide) has sufficient expertise in undertaking impact evaluation studies and associated econometric analysis.

Also, in the course of seeking approval for the proposed research from the Ekiti State Ministry of Labour, Productivity and Human Development, we found that there has been no provision made for an impact evaluation of the cash transfer scheme. The pilot scheme was not evaluated either. According to the Director of Social Welfare, Mrs. Florence Adebayo, this is largely due to shortage of skills to undertake standard evaluation.

Thus, a key objective for submitting this proposal is to gain the capacity building for local researchers as embedded in projects funded by the Partnership Economic Policy’s (PEP). It is clear that not only will undertaking this evaluation research enhance the ability of our research team members to undertake rigorous and high quality research to support evidence-based decision making, but also to support capacity building of our collaborators in the relevant government department. Enhancing our capacity in the area of impact evaluation seems a natural way to generate inputs into policy-making and to become actors of development in the State, Nigeria and Africa.

Therefore, the participation of the junior researchers in our team is intended to gain immensely from the study. This will help them enhance their knowledge of theories and empirical literature on impact evaluations and skills in econometric analysis and associated use of statistical software, necessary to produce reliable and robust results. We will make recommendation to PEP that at least one of our junior research team members is approved for the PEP training. Table 5 presents the training and experience of our research team members. Table 6 presents details of individual tasks.

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22 http://www.journals.elsevier.com/journal-of-development-economics/
9. Collaboration arrangements and approach to dispute resolution

9.1. Collaboration arrangements

The main collaborator is the implementing agency, the Ekiti State Ministry of Labour, Productivity, and Human Development and the directorates under the ministry. Specifically, we will work directly with the Director of Social Security, Mrs. Olabisi Fatoba, whose primary responsibility is to implement the intervention and monitoring disbursement. She will be involved in the stakeholder engagement workshop. The Director of Community Development, Mrs. Florence Adebayo, who has been detailed to work directly with our research team, will have responsibility survey for data collection, disbursement monitoring in the field, and to liaise between our research team and the implementation agency. Both Mrs. Fatoba and Mrs. Adebayo have been involved in the design of the research agenda. Mrs. Adebayo has facilitated contacts with all the major stakeholders in the State including the Chairmen of the 16 local governments, and NGOs operating in the State. The research organization will be based at the Initiative for Public Policy Analysis, Lagos.

9.2. Dispute resolution

Any scientific disagreement relating to the intervention will be subjected to a discussion until a well proven consensus is reached. As part of our mode of practice, IPPA has a general means of mitigating project-related disputes. One of such is prior agreement on clear roles and responsibilities amongst research team and our collaborators. For example, agreement has been reached on the approach to randomization method, and the roles of the directorates under the implementation agency that are to work with our research team with each understanding their roles and the expectation from them.

Generally, disputes can be inevitable when working with others. How these disputes are handled determines whether it works to the advantage of the research team or otherwise. Our approach which has been in operation for years is to appreciate the viewpoints of others and ensure communication at every stage of the research project. Communication is considered as very essential in preventing or resolving disputes when they occur.

For the proposed research, we have proposed a monthly meeting between the research team and our collaborators, using teleconferencing technology. At such a meeting, progress of the research are discussed, positions clarified and approaches to solving any emerging issues are discussed towards a joint agreement. The research team leader will ensure communication to all parties in a transparent manner.

10. Ethical, social, gender or environmental issues or risks that should be noted

In line with the declaration of Helsinki, all eligible beneficiaries in the Register had given their consent to be included in any study designed to improve the Ekiti State cash transfer for the elderly. Additionally, we will request another ethical clearance if the need be from the implementation agency in Ekiti State. This has been discussed already with the Director of Social Security Mrs. O. Fatoba.

10.1. Human subjects concerns

*Explain how the project will comply with requirements of local ethics review boards (e.g., how will you ensure informed consent? how will you ensure that no one comes to any harm? how will you ensure confidentiality? etc...*)

Informed consent: Two levels of informed consent are envisaged for the proposed project. The first relates to consent to participate in the treatment/control to be followed up overtime. According to the information provided by
the implementation agency, all eligible beneficiaries were asked in the three languages spoken in the State (English, Yoruba and Ekiti dialect) if they consent to their information being used for research or any program designed to improve delivery of the scheme. Individuals then answered ‘Yes’ or ‘No’. According to the Director of Community Development, consent rate is 100%. Also, all the beneficiaries were assured of their privacy and that the information they provided are confidential and will not be shared with any authorized persons or organization, without the approval of the Commissioner of Labour, Productivity, and Human Development.

For the purpose of the proposed research, only eligible beneficiaries who consented to the research in line with the Labour, Productivity, Human Development protocols and declaration of Helsinki will be assigned into treatment and control groups and for follow-up. Regarding consent to participate in the endline surveys, all data collection interviews will be undertaken as part of the Ministry’s routing monitoring systems, which is governed by the statutory law establishing the scheme.

**Ensuring that no one comes to any harm**: Whilst every effort will be made to ensure that no one comes to any harm, the intervention does not present any risk of being exposed to any danger or harm at any stage of the research. We are not undertaking a clinical drug trial that may entail the risk of adverse side effects, reactions or complications. The proposed intervention simply increase the income of the beneficiaries and examine the impact that this has on their expenditure patterns and general living conditions, compared to when they do not have this resource, the later (counterfactual scenario) being examined on the control group.

**Confidentiality**: The data sets to be used for analysis will be completely anonymised, which ensures that no individual will be identified. It has been agreed with the implementation agency that all individuals in our sample should be completely anonymised, in which all individual identifiable information such as date of birth, family compound (proxy for postcode in communities), names and addresses are removed from the data. Also, individuals will be assigned a person identifier – an alphanumeric generated during the randomization exercise. The individual person identifiers will be used to merge both the baseline and the endline data. In consultation with the Directorate of Community Development in charge of data collection, we will follow any standard protocols for data management and safekeeping as may be stipulated by the Directorate.

### 11. List of past, current or pending projects in related areas involving team members

<table>
<thead>
<tr>
<th>Name of funding institution</th>
<th>Title of project</th>
<th>Team members involved</th>
</tr>
</thead>
</table>
12. Expected timelines and budget

Timelines: Timelines have been agreed with our collaborators - the officials of the implementation agency and the set timelines are consistent with the important dates for PAGE proposals as contained in the Grant Manual. The implementation agency has agreed to shift the roll-out date to August 2013, with the beneficiaries receiving their payment by 31 August 2013. The other dates are as follows:

Commencing June 2013 (1 month): Randomisation exercise

July - August (2 months): Survey of randomized treatment and control groups for baseline data collection. Note that the evaluation sample shall be limited to the efficient sample size suggested by the previous statistical test.

September – November 2013 (3 months): Descriptive statistics of baseline data and draft of first report.

December - January (2 months): Review of the literature, country context, etc. and update first report.

July – September 2014 (3 months). Survey for collection of endline data will commence across all the LGAs 12 months after the intervention. However, we will allow a lag of one month, based on the view that payment received at the end of last month will be spent during the following month.

October – November 2014 (2 months): Data preparation including merging baseline and endline datasets and data cleaning.

December – February 2015 (3 months): Econometric analysis and preliminary results

March – May 2015 (3 months): writing-up of the final draft of report.

June 2015 (1 month): Submission of final draft.

June – July 2015: (2 months) Stakeholder engagement workshop to be held at the State capital, Ado-Ekiti, and International workshop at the HelpAge International, London UK

Total duration of project: 21 months, which is three months longer than 18 months stated in the PEP Grant Manual. However, the Grant Manual allows for impact evaluation studies to extend beyond the stated 18 months.

Note that project meetings will be held bimonthly to discuss progress, identify issues arising from disbursement, logistics, and data as the case may be. All meetings will be held with collaborators at the State capital, Ado Ekiti. Also, in between this period, allowance will be made for a junior member of the research team to attend PAGE organized training.
References


Table 1: Details of data to be collected and usage

<table>
<thead>
<tr>
<th>Variable</th>
<th>Examples, description, definition, type</th>
<th>Rationale and use</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Individual level data:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Demographic and socioeconomic variables.</td>
<td>e.g. Marital status, education (can read and write), gender, estimates of monthly income, family/household structure, etc.</td>
<td>Control variables</td>
</tr>
<tr>
<td>- Health status</td>
<td>Self-assessed health – very good, good, fair, poor, and very poor. Anthrometric measurement using Mid-Upper Arm Circumference (MUAC).</td>
<td>Self-assessed health provides a measure of well-being. It is a major outcome variable. MUAC has been used to measure of nutrition status (i.e. degree of malnutrition or under-nutrition) in elderly African populations (e.g. Ismail and Manandhar 1999, Charlton and Rose 2001, HelpAge International 2012). MUAC will be used as an outcome variable as a measure of malnutrition. It can also be used to validate calorie intake from food consumption.</td>
</tr>
<tr>
<td>- Expenditure patterns</td>
<td>Monthly expenditure on food – at home, out of home. Monthly expenditure on medicines/local herbs. Expenditure on clothing and other personal items. Monthly Expenditure on farm (labour hire, tools) (continuous). This will be limited to the planting season. Other expenditure items (to be determined in a meeting with the implementation agency)</td>
<td>Expenditure pattern items are to be used in descriptive analysis and as control groups.</td>
</tr>
</tbody>
</table>
- **Consumption**
  - Food consumption – quantity of each food item consumed using a 7-day recall period.
  - Food items will include foods that are eaten mainly in Ekiti State raw, processed or prepared form.
  - The essence is to obtain the daily calorie intake by the individual.
  - As shown in Table 3, the food items will be categorised into subgroups for ease of analysis.

- **Health risky behaviour**
  - Smoking (binary – yes/no). If yes, number of cigarettes or rolls of local tobacco smoked in a day).
  - Alcohol consumption (type of alcoholic beverages – local wine, beer, bottled wine, local gin).
  - Frequency of consumption per week (e.g. none drinker; occasionally, daily, twice a week, three times every weekend, every age-group meeting day, occasionally, etc. (categorical to be converted to binary variables).

- Food consumption is a major outcome variable.
- It is in line with the objective of the Ekiti social security scheme for the elder and our agreement with the implementation agency.
- Also, studies that have examined the impact of non-contributory old age pensions in developing context shows that most of the beneficiaries spend their cash transfer on food and in buying medicines (e.g. Aguila et al 2010).
- The basis for calorie intake from food consumption is important for determining the level of malnutrition in the elderly. Calorie intake from food consumption is considered as the main determinant of under- and malnutrition in elderly in Nigeria (Babatunde et al 2010).
- Inadequate supply of calorie lowers productivity and increases risk of diseases (Aromolaran 2004).
- The total food calorie by the individual is the key outcome variable to measure nutritional status.
- These are outcome variables through which we want to examine unintended effects.
- Tobacco and excessive alcohol use are common in African elderly population (e.g. Kimokoti and Hamer 2008).
- The health problems associated with these variables are well known. Thus, we will examine unintended effects on these variables. In particular, excessive alcohol consumption is prevalent in Ekiti state.
- Labour supply
  - Major occupation (occupation types: faming, bricklaying, tailoring, etc.)
  - Number of hours work in a week
  - To be used as control variables intended to capture labour supply

Household level:

(b) - Household level data
  - E.g. Household size, number of children in household, number of wives (if more than one)
  - House tenure (renting/owned)
  - Living arrangement (live alone, with relatives, with spouse, with children, with non-relatives).
  - How many days in a week do male children have to work to earn money?
  - How many days in a week do female children have to hawk goods in the street to earn some money for the family?
  - Household level data will be used as controls.

<table>
<thead>
<tr>
<th>Food Group/category</th>
<th>Food items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Roots and Tubers</td>
<td>Eba, Fufu, Amala, Lafun, Potatoes, Gari, Cocoyam, Yam, Pounded Yam, Porridge, Iyan, etc.</td>
</tr>
<tr>
<td>2. Cereals and Legumes</td>
<td>Rice, Ogi/Custard, Maize, Bread, Biscuits, Cake, Beans, Moin-moin, Akara, Melon, Groundnut, etc.</td>
</tr>
<tr>
<td>3. Fruits and Vegetable</td>
<td>Plantain, Orange, Pawpaw, Banana, Garden Egg, Vegetables (leafy and fruit), Pepper, etc.</td>
</tr>
<tr>
<td>4. Fats and Oil</td>
<td>Butter, Palm Oil, Vegetable Oil, Olive oil, etc.</td>
</tr>
<tr>
<td>5. Beverages</td>
<td>Tea/Coffee, Sugar, Bournvita/Milo, Soft drinks, Emu, etc.</td>
</tr>
<tr>
<td>6. Meat</td>
<td>Pomp, Beef, Pork, Sheep Meat, Chicken, etc.</td>
</tr>
<tr>
<td>7. Fish</td>
<td>Fishes of all kind, Panla, etc.</td>
</tr>
<tr>
<td>8. Other Animal Products</td>
<td>Milk, Eggs, etc.</td>
</tr>
</tbody>
</table>

Source: Orewa and Iyande (2010).
Table 3: Research communication strategy and policy influence outreach

<table>
<thead>
<tr>
<th>Institution</th>
<th>Contact</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National level:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| National Planning Commission, Abuja. (The commission is the focal point for Development Planning and Economic Management of the Federal Government of Nigeria). | Mr. Abraham Abiodun Taiwo  
Deputy Director,  
Social Development Department,  
National Planning Commission,  
Abuja Nigeria  
Phone: +234 8065531308;  
Email: abraham.taiwo@ymail.com | Dr. Shamsuddeen Usman,  
Hon. Minister and vice-chairman of the National Planning Commission. The Vice President, Mohammed Namadi Sambo is the Chairman of the commission). |
| Committee on Labour, Employment, and Productivity. Federal House of Representatives Abuja. (This committee adjudicate on all matters relating to social security and other cognitive matters). | Mr. Sammy Edo Etefia  
Secretary, Committee on Labour, Employment, and Productivity;  
The Federal House of Representatives Abuja.  
Telephone: +234 8036252887 +234 8044113710 | Hon. Essien Ekpeyong Ayi. Chairman, Committee for possible sponsoring of the old age pensions bill at the National Assembly. |
| **State government level:** | | |
| Ekiti State Ministry of Labour, Prod. and Human Development, Ado Ekiti. (Implementation agency) | Mrs. Olabisi Fatoba  
Director of Social Security  
Phone: +2348038214375;  
Email: olufunmilayofatoba@gmail.com, | Chief Oluwole Ariyo Commissioner for Labour, Productivity and Human Development; managers and staff of the implementation agency. |
| Directorate of Community Development, Ekiti State Local Government Commission, Ado Ekiti. (The local government commission coordinates the activities of local Non-governmental organisations (NGOs); Civil society organisations (CSOs); and non-state actors (NSAs). | Mrs. Florence Adebayo  
Director of Community Development  
Tel: +2348038263822  
Email: florenceolabisia@yahoo.com | Chief Dayo Fadipe  
Commissioner for Local Government and Community Development; local NGOs; CSO); NSAs. |
| Ekiti State House of Assembly, Ado Ekiti (State Legislature) | Mr. Gboyega D. Adejemilua  
Secretary, Committee on Social Welfare.  
Tel: +2348062278287  
Email: dammyadejemilua@yahoo.com | Dr. Omirin Adewale. Honourable Speaker, Ekiti State House of Assembly and chairmen of committees interested in the scheme (e.g. finance and appropriation) |
| **International level:** | | |
| HelpAge International Pension Watch (http://www.pension-watch.net/) | Charles Knox-Vydmanov  
Social Protection Policy Adviser  
HelpAge International,  
Third Floor, Tavis House  
1-6 Tavistock Square | Social protection stakeholders (policy makers, actors and advisors) at the international level. |
| | | This channel provides a way to reach |
out to the international audience. To this end, HelpAge International has allocated a blog space to our research where we could be disseminating information about or research. This is in addition to Biennial Newsletter and Regional networks. (see, Supplementary Doc. 4)

Table 4: Training and experience of research team members

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex (M,F)</th>
<th>Training and experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damilola Olajide</td>
<td>49 years</td>
<td>M</td>
<td>PhD Economics. Senior Research Fellow with the applying institution – IPPA. Prior to returning home to join IPPA in 2011, he was a research fellow at the University of Aberdeen UK. He holds a Master degree in Economics with specialisation in project evaluation. He is an experienced researcher, with expertise in evaluation methods and applied econometrics, and the application to different types of interventions such as banking regulation, health care, and social protection, all of which are development-related. He possesses excellent knowledge of major statistical software such as Stata, SPSS, Eviews, SAS, and R.</td>
</tr>
<tr>
<td>Adaku Ezeibe</td>
<td>42 years</td>
<td>F</td>
<td>PhD Agric Economics. Facilitator/Research Fellow, Centre for Entrepreneurship and Development Research, University of Nigeria, Nsukka. Areas of expertise include rural entrepreneurship, evaluation of entrepreneurship education and training for women, gender empowerment, and field survey.</td>
</tr>
<tr>
<td>Kafilah Gold</td>
<td>35 years</td>
<td>F</td>
<td>MSc. Economics. She teaches Economics and Research Methodology at the Kwara State College of Education and intends to pursue a PhD in economics.</td>
</tr>
<tr>
<td>Olusegun Sotola</td>
<td>33 years</td>
<td>M</td>
<td>MSc. Public Policy. IPPA Research Associate. He was a school teacher. He has experience in field surveys. He intends to pursue a PhD in public policy and he is eager to learn econometric techniques to improve his ability to undertake quantitative research. His participation in this research will be directly applicable.</td>
</tr>
<tr>
<td>Olufunke Olufemi</td>
<td>35 years</td>
<td>F</td>
<td>She holds a BSc. in Economics. She is pursuing a Master’s degree in Economics at the Ekiti State University, Ado Ekiti. She intends to pursue a PhD in Economics. Her participation in the proposed research will help build her capacity.</td>
</tr>
</tbody>
</table>

Note that the list of research team has now been updated to exclude Dr. Aremu Olatunde, who will now serve as an advisor to the research team.
<table>
<thead>
<tr>
<th>Name</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damilola Olajide (Principal Investigator)</td>
<td>As the team leader, he will be involved in ongoing consultations to maintain close collaboration of the research team with the officials in charge of implementing the cash transfer scheme under evaluation. He will undertake the econometric analysis of the project impacts, write reports and fully involve in the stakeholder engagement workshops and policy discussions with policy makers and other stakeholders.</td>
</tr>
<tr>
<td>Adaku Ezeibe (Co-Principal Investigator)</td>
<td>Given her experience, she will coordinate field surveys for data collection involving our research team and our collaborators in charge of field activities. Her experience will be relevant to examining the field dynamics of the scheme such as disbursement monitoring and follow-up individuals in the study sample. She will be involved also in drafting progress reports and take part in meetings with stakeholders and collaborators.</td>
</tr>
<tr>
<td>Aremu Olatunde</td>
<td>PhD Health Economics. He has expertise in randomised control trials, health technology assessment, and systematic reviews. He has a good knowledge of several statistical software packages such as RevMan, MATLAB, Epi-Info, STATA and Simulate. Given his experience he will serve as an advisor to our research team, particular in the quantitative aspect of the study.</td>
</tr>
<tr>
<td>Kafilah Gold</td>
<td>She will be involved in the randomisation exercise. Her experience of qualitative research will also help in designing and administering survey questionnaires for data collection. She will be actively involved in data preparation and descriptive analysis. She will take part in meetings with stakeholders and collaborators.</td>
</tr>
<tr>
<td>Olusegun Sotola</td>
<td>He will work with our collaborators at the Directorate for Community Development to undertake field survey and disbursement monitoring. He will be involved in data preparation and limited data analysis to improve his capacity. He will take part in meetings with stakeholders and collaborators.</td>
</tr>
<tr>
<td>Olufunke Olufemi</td>
<td>She will work with our collaborators in field activities (e.g. disbursement monitoring) and data preparation and preliminary analysis. She will take part in meetings with stakeholders and collaborators.</td>
</tr>
<tr>
<td>Florence Adebayo</td>
<td>She has a Master’s degree is Social policy and Administration. She is the Director of Community Development in the Ekiti State Local Government Service Commission. She has been nominated by the Ministry of Labour, Productivity and Human Development to work with our research team on this project. She will coordinate the field surveys to collect both baseline and endline data, monitoring of intervention, project meetings and workshops, and other tasks as may be prescribed by her ministry.</td>
</tr>
</tbody>
</table>
Appendix 1: Map of Ekiti State Nigeria, showing the 16 LGAs

Source: Ekiti State website.