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**Identifying the most deprived in rural Ethiopia and Uganda:
A simple measure of socio-economic deprivation**

by

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Abstract

The Extreme Deprivation Index uses easily verifiable answers to ten questions about the ownership of the most basic non-food wage goods - things that poor people in a variety of rural contexts want to have because they make a real difference to the quality of their lives. Using this Index, we define rural Ethiopians and Ugandans who lack access to a few basic consumer goods as 'most deprived': they are at risk of failing to achieve adequate education and nutrition; becoming pregnant as a teenager; remaining dependent on manual agricultural wage labour and failing to find to a decent job. As in other African countries, they have derived relatively little benefit from donor and government policies claiming to reduce poverty. They may continue to be ignored if the impact of policy on the bottom 10 per cent can be obscured by fashionably complex indices of poverty. We emphasize the practical and political relevance of the simple un-weighted Deprivation Index: if interventions currently promoted by political leaders and aid officials can easily be shown to offer few or no benefits to the poorest rural people, then pressures to introduce new policies may intensify, or at least become less easy to ignore.

Keywords: Ethiopia, Uganda, poverty, index, assets

Identifying the most deprived in rural Ethiopia and Uganda: a simple measure of socio-economic deprivation

Introduction

Policymakers who have to deal with an excessive and mystifying array of poverty indicators may find the Extreme Deprivations Index (EDI) proposed in this paper useful. A bewildering smörgåsbord of indices and definitions of poverty is set out before policymakers in Sub-Saharan Africa. Apart from the much criticized household per capita expenditure data used to define poverty and ultra-poverty - and as a shaky foundation on which to construct inequality measures such as the Gini, Theil or Atkinson indices (Wittenberg and Leibbrandt, 2015) - the buffet table is also laden with a variety of new, non-monetary indices of poverty, including brave attempts to quantify ‘freedom from violence’ and levels of ‘empowered decision making’.¹ These novel indices may then be used in combination with the increasingly fashionable Multidimensional Poverty Index (or other ‘mash-up indices’, Ravallion, 2012) to report, for example, the percentage of women ‘deprived in at least three dimensions’ (Beegle et al, 2016: 108).

We offer a simpler fare, especially to policymakers mystified by the excessive array of poverty indicators on offer. Eschewing indigestible mash-up indices, the EDI is neither a multidimensional nor a comprehensive indicator of the quality of life. It avoids the difficulties faced by those wishing to construct asset indices as a proxy for wealth, because it does not rely on depreciated values or make arbitrary choices about

how to weight different assets. The relevant time series of prices to estimate depreciation is unlikely to be available in many poor rural areas and it will always be difficult to account for differential quality. In addition, huge seasonal price variations have been recorded for rural assets - in Tanzania, for example, the price of a bicycle can more than double in the dry relative to the wet season (Kaiser et al, 2016: 2). Besides, responses to questions about a key producer good and investment asset in rural Africa - the number of animals owned - are always much more unreliable and more difficult to verify than responses to questions required for the EDI about inanimate items of furniture (Lesnoff, 2015; Himelein et al, 2014). The accuracy of responses to questions about inanimate items is more easily confirmed visually by enumerators.²

In the growing literature and debates about selecting the ‘best’ method of identifying the poor (or the best Proxy Means Test) the criterion continues to be the accuracy of different Proxy Means Tests in predicting per capita expenditure/income, as if policy makers should always regard expenditure as measured in Household Budget Surveys as the only relevant or the gold standard (Ngo and Christiaensen, 2018; McBride and Nichols, 2016; Dang et al, 2017).³ We do *not* claim that the EDI can precisely simulate or predict the distribution of expenditure (or of income) per capita among respondents' households. The EDI is designed specifically to focus attention on extreme deprivation, the condition of a small group of people living far below any of the conventionally drawn income per capita poverty lines that have transfixed policy design. Our simple index cannot and should not be used to produce a spuriously precise ranking of all surveyed households by their Deprivation ‘Score’ or to correlate this ranking with an imputed monetary measure of household consumption per capita.

The Extreme Deprivation Index (EDI) provides a new type of measure based on a context-specific selection of *the most basic of non-food wage goods*, a very small bundle of consumer goods each of which can make a huge difference to rural life in certain areas of Ethiopia and Uganda. The focus is on private consumption; goods that may have been provided by the public sector, such as water and sanitation, are *not* included in this index. Since the purchase of some consumer durables is often associated with access to a publically provided electricity grid, these durables (such as televisions) are also excluded from the EDI. The index is practical: it allows a quick, reliable and cost-effective way of identifying people who have extremely low standards of living and of assessing the impact of policy interventions.⁴ It may be particularly useful for evaluative purposes: to assess the extent to which policies and programmes are linked to positive outcomes for the most deprived.

We begin by discussing the methods used to analyse the data collected for the *Fair Trade, Employment & Poverty Reduction* (FTEPR) project in Ethiopia and Uganda. This project asked questions about a wide range of the basic consumer goods owned by more than 1,700 rural respondents living in areas that had achieved some success in producing export crops.⁵ We included a very small number of key consumer durables when constructing the EDI, using different techniques and types of argument to justify our selection. For example, we drew on the well-known technique of Principal Components Analysis (PCA); on insights developed on the basis of our own and other East African fieldwork; and on Engel-type conjectures about expected shifts in the share of consumption devoted to ‘necessities’ (basic foods) and ‘luxuries’ at low levels of prosperity (Pritchett and Spivack, 2013).

The rationale for the selection of a limited number of basic consumer goods is outlined in the first part of this paper. This outline distinguishes our work from many other studies because, when discussing the selection of items to be included in indices of socio-economic status, most studies are content to follow conventions established by earlier social scientists; they admit that ‘there remains a paucity of underlying theory to support the choice of variables for PCA’ (Tusting et al, 2016: 651) and, in making their choices, they do not focus on the most basic of consumer durables as defined in this paper. Instead, variables often appear to have been selected simply because they are available in a large internationally comparable data set, even when very few of the rural poor in Africa have any prospect of owning some of the durables, such as a car or a refrigerator, included in this data set.⁶

Many policies, interventions and expenditures by donors, NGOs and African governments claim to have a positive impact on the rural poor. We argue that the EDI can reliably and consistently identify the rural individuals who are the most vulnerable and deprived. In assessing claims about poverty reduction in Africa it helps to define the characteristics of the most deprived rural people in some detail. Some of these characteristics are discussed in the second part of this paper, which demonstrates the heuristic value of using a parsimonious variable set to construct an extremely simple index of deprivation.

Selecting consumer goods and calculating weights

Since the mid-nineteenth century, survey data have provided insights about how patterns of consumption evolve as households become more prosperous, as the food

share of the budget declines (Chai and Moneta, 2010; Anker, 2011). Although a high proportion of rural African households in the lowest expenditure/wealth quintile fail to consume the amount of food necessary to prevent child stunting (Black et al, 2013), many of these poor households do devote some of their expenditure to *non-food* consumer goods, managing to acquire simple items of furniture and other basic consumer goods. For example, in rural Kenya, the expenditure elasticity for furniture – ‘beds, chairs, tables, etc.’ – has been found to be very high in a random sample of poor households (Haushofer and Shapiro, 2013: 30). In a poor rural area of South Africa, where many children are stunted, expenditure elasticities for items of furniture have also been found to be very high (Browne et al, 2007: 571). In Uganda, a ranking of consumer goods - from basics to luxuries - has successfully been used to investigate welfare levels: households in Uganda have to pass above a certain threshold level of income before being able to afford durables from the ‘more expensive’ categories, such as a sofa, a radio, or a kerosene lamp (Pouw and Elbers, 2012:1367). Similarly, our fieldwork for the FTEPR survey, including many hours spent in respondents’ homes, established that even the most obviously deprived and poverty-stricken respondents might reasonably expect to own a few consumer durables. There were some telling exceptions: respondents so deprived that, like one particular young woman in rural Ethiopia, they lived in an utterly bare room and had to borrow a rudimentary bench from a neighbour to offer to interviewers.

Respondents in the FTEPR were asked whether or not they owned a long list of consumer durables; they were recorded as owning a consumer good if they could make a decision to sell or dispose of that item. We used the first component of the

PCA to reduce an initially long list of consumer goods to a much smaller number of items to be used for the EDI. The selected indicator variables were: cupboard; metal or wooden bed; table; sofa set; stove or cooker; thermos; torch; mobile 'phone; radio; and a cassette/CD Player. Table 1 shows the proportion of respondents owning these consumer goods in our sample as a whole, as well as in the Ethiopian coffee growing areas, since these areas contained respondents who were, on average, relatively deprived.⁷

There were other reasons, not statistically driven, for deciding that this short list could provide insights into rural welfare: we came to appreciate that access to these consumer goods could result in an absolute improvement in the quality of rural life. Without reliable access to electricity, a torch makes the night safer; sleeping on earthen floors cannot be compared to sleeping on a bed; a radio and a mobile phone can expand intellectual horizons, reduce isolation and even help in searching for casual wage employment. Respondents may also be able to benefit in less obvious ways if they own 'honorific' or 'prestige-based' consumer goods - such as a sofa set (Kaiser et al, 2016: 3). Since respondents in the poor rural areas covered by the FTEPR are well aware of these benefits, the expenditure elasticities of all the selected indicator variables are likely to be positive and greater than one; and our survey does show rather widespread ownership of these consumer goods. For example, about half of all our respondents owned a radio and more than half owned a table, while 60 per cent owned a bed (Table 1). None of our respondents owned more 'luxury' items such as a motorcycle or a television.⁸

We also used PCA to construct a weighted index from the ten selected variables. But it was discovered that a simpler, un-weighted index identified *the same* respondents as 'most deprived', i.e. falling into the lowest 20 per cent of the dataset because they own none (or only one or two) of the consumer goods listed. As with all Poverty Lines, choosing a cut off point to demarcate the most deprived from the less deprived is arbitrary (Deaton, 2006). Here the cut off is the bottom quintile of the distribution of scores on the EDI.

Describing deprivation in Ethiopia and Uganda

Using our simple index, the people identified in the FTEPR survey as 'most deprived' can readily be shown to share some characteristics with the poorest rural populations captured by larger surveys designed to estimate household expenditure or wealth - including those surveys claiming to be 'representative' of the national populations of Ethiopia and Uganda.⁹ While this provides some assurance that EDI results are broadly consistent with the results of much more expensive surveys, there are three important differences. First, the respondents in the FTEPR survey appear, on average, to be *more* deprived and vulnerable than respondents covered in many other rural surveys. For example, adult literacy rates are *lower* in our survey than amongst the rural adults captured in the nationally representative Demographic and Health Surveys (especially in Uganda). Second, unlike most household expenditure surveys, the simple index does *not* suggest that larger households are more likely to suffer from deprivation, but identifies small and 'female dominated' households as much more vulnerable. Finally, the simple index shows very clearly how deprivation is linked to

different types of employment, something that many other Ugandan and Ethiopian surveys that fail to capture rural wage workers are unable to do.

The EDI is also used to highlight very large gaps between the experiences of the 'most deprived' and 'less deprived', confirming that inequality is a central feature of rural African life (Jayne et al 2015; Deininger et al, 2015: 16). The dramatic contrasts between the 'most' and 'less deprived' (shown in Tables 2 to 6) raise important questions about the processes, dynamics and trends that could account for the extreme deprivation of adults and children in the bottom quintile. Logistic regressions may be helpful in highlighting some potential determinants, but they may be less helpful in explaining the *causal mechanisms and processes* that lead to a given condition, such as being very deprived, or working for very low wages.¹⁰

Education and deprivation

In sub-Saharan Africa, educational attainment is closely correlated with poverty; extremely poor adults (conventionally defined as those living in households with per capita income/consumption below \$1.90 in PPP terms) are much more likely to have no education than moderately poor adults, who are in turn much more likely to have no education than the non-poor (Castaneda et al, 2016: 21). In both Ethiopia and Uganda, the national Demographic and Health Surveys show that low levels of adult female education are associated with household poverty as measured by a Wealth Index.¹¹ A low level of female educational attainment is widely believed to be a particularly useful marker of poverty and of the adverse longer-term consequences of deprivation, because a woman's lack of education is likely to be transmitted inter-

generationally, negatively affecting the health, productivity and lifetime earnings of her children.¹²

The prospects for the survival of a child in Sub-Saharan Africa beyond the age of 5 years are greatly reduced if their mother has not completed 7 years of education (Bado and Sathiya Susuman, 2016). In rural Ethiopia, it has been argued that an increase in each level of maternal education reduces the relative probability of stunting by almost 20 per cent (Alemayehu Azeze and Huang, 2014).¹³ In Uganda, an estimate of the causal effect of an additional year of schooling concluded that children born to women with more education are more likely to be protected against common diseases and are better nourished (Keats, 2016: 23).¹⁴

In our survey female respondents were much more likely to be functionally illiterate (62.3 per cent) than male respondents (47.7 per cent), and the Extreme Deprivation Index consistently predicted differences between the educational attainment of the 'most deprived' and 'less deprived' individuals. The majority (54.7 per cent) of the 1,710 respondents in the survey are functionally illiterate, claiming that they *never* read newspapers, emails, text messages, books or any other written documents; but a higher proportion - 63.1 per cent - of those respondents classified by the EDI as 'most deprived' are functionally illiterate than the 50.3 per cent of the 'less deprived' respondents (Table 2).

Insert Table 2 about here

Despite the fact that primary enrolment rates have risen dramatically in both Ethiopia and Uganda since the mid-1990s,¹⁵ increasing the probability that younger age cohorts could attend Primary School and learn to read, over half of the 'most deprived' younger respondents (aged less than 30) remain functionally illiterate, compared to about 37 per cent of the 'less deprived' respondents in the same age group. High rates of functional illiteracy, even in younger age cohorts, are consistent with the persistence of failures to attend or to complete Primary School. A majority of the cohort of respondents aged between 20 and 40 years (about 60 per cent) did not complete Primary School. Again, the EDI can be used to identify the respondents in this prime age group who are least likely to have completed Primary School: 77 per cent of the 'most deprived' fall into this category, compared to 54 per cent of the 'less deprived' (Table 2).

Roughly contemporaneous national surveys, such as the Demographic and Health Surveys (DHS) 2011 and the Living Standards Measurements Surveys of 2011-12, also show that adult illiteracy is a severe problem in the rural areas of Ethiopia and Uganda.¹⁶ But a much higher proportion of adults was illiterate in the FTEPR surveys than in these national surveys, especially in tea-growing areas of Uganda where the illiteracy rate of all the FTEPR respondents (over 63 per cent) was more than double the national rural rate recorded in the DHS and the illiteracy rate of the 'most deprived' respondents was as high as 74 per cent (Table 2).

There are intra-household externalities, or positive spillovers benefiting individuals living in households containing an educated person (Basu et al, 2001). The household rosters in the FTEPR project survey list a tiny number of people who have completed

secondary school, but the 'less deprived' households were more likely to contain at least one secondary school graduate than the 'most deprived' households (Table 2) and female respondents in the 'less deprived' households were significantly more likely to have been to Secondary School.

If children cannot seek assistance from an educated parent or other household member, then they themselves are less likely to do well at school. In both Uganda and Ethiopia, children aged 6-12 years surveyed by the DHS are much less likely to be attending primary school if they are in the lowest wealth quintile than if they are in the highest wealth quintile (<http://www.epdc.org/>). So it is not surprising that a large number of children aged between 6 and 15 years in the FTEPR survey fail to attend school and that, for instance, almost half of the relevant households in the Ethiopian Coffee sample currently include at least one child who has dropped out of school. The Ugandan Coffee sample provides a particularly good example (Table 2) of the contrast between the proportion of 'most deprived' households with a child school dropout (30.4 per cent) and the proportion of 'less deprived' households with a school dropout (17.1 per cent); a similar contrast is evident in the Ugandan DHS data, where the national share of rural children in this age group not attending school is about 15 per cent, compared to 31.1 per cent in the poorest wealth quintile of households.

Diet

The typical links between parental educational attainment and the nutritional status of children cannot be estimated directly with the FTEPR sample, because the survey did not have the resources to collect anthropometric data. However, data on dietary diversity and on the frequency of consumption of different food types may be used as

a proxy for nutritional status/vulnerability (Hernández, 2012; Herrador et al, 2015; Hirvonen et al, 2016; Hirvonen et al, 2017; Muhoozi et al, 2016). The FTEPR survey did ask questions about how frequently different types of food were eaten by anyone in the household, for example if any high-value food item (such as beef, milk/yoghurt, or eggs) was regularly consumed, i.e. once or more per week. The answers to these questions (Table 3) suggest that the simple deprivation index is surprisingly useful in predicting dietary diversity (and nutritional status) as well as educational attainment: only 13.8 per cent of the 'most deprived' claimed to eat any high value food items regularly, compared to 45.3 per cent of the 'less deprived'.

Insert Table 3 about here

Gender, household composition and deprivation

There have been many attempts to use the data from national surveys to link deprivation with 'Female Headed Households' in Sub-Saharan Africa and in Latin America, but these typically reach ambiguous conclusions (Milazzo and van de Walle, 2015; Liu et al, 2016). The FTEPR survey took a different approach to analysing the relationship between the gender composition of households and deprivation; we refused to identify a household head and carefully trained enumerators to look beyond relatives and permanent residents when adding *all* individuals 'economically linked' to the Principal Respondent to the Household Roster. These innovative methodological choices, (described in detail in <http://ftepr.org/> and in Cramer et al, 2014a) allowed the survey to reveal some interesting findings in an analysis of the relationship between the gender composition of households and deprivation.

The starting point for this analysis was the overwhelming evidence that, in both rural Ethiopia and Uganda, women are brutally disadvantaged by discrimination and suffer from relatively extreme forms of deprivation compared to men (Marshall et al, 2016; Semahegn and Mengistie, 2015; Bantebya et al, 2014). The 'most deprived' households may be expected to contain relatively few adult males. 'Female Dominated' households, i.e. households where females account for more than 75 per cent of adults, are likely to fall into the 'most deprived' category: in Uganda, about 17 per cent of the 'most deprived' households are 'Female dominated', compared to about 9.5 per cent of the 'less deprived' (Table 4). Not only were the 'most deprived' households more likely to be Female Dominated, but also they were more likely to lack regular access to any financial support from an adult male.¹⁷ In the Ugandan tea sample there was a particularly large difference between the proportion of households *without* regular male support falling into the 'most deprived' category (47.1 per cent) and the proportion of unsupported households that fell into the 'less deprived' category (15.3 per cent), see Table 4.

Insert Table 4 about here

Young women in the 'most deprived' households (and their children) may face other risks because of their relationships with men: in these households, young women aged between 20 and 30 years are likely to have had a child as an adolescent. Adolescent pregnancies are hazardous both for the mother and the child: international research has identified 'an increased risk of low birthweight, preterm birth, stunting at 2 years, failure to complete secondary schooling, and lower adult height in children of young

mothers (≤ 19 years) compared with mothers aged 20–24 years' (Saloojee and Coovadia, 2015: e342). Teenage mothers are at greater risk of mortality; and their lifetime labour incomes are likely to be significantly lower than the earnings of women who did not have children when they were teenagers (Pradhan and Canning, 2015: 1).

In the FTEPR sample as a whole, a high proportion of women gave birth to their first child as a teenager (about 58 per cent), but in the Ethiopian coffee research sites an even higher proportion (about 65 per cent) were teenage mothers, making it difficult to find a statistically significant difference between the incidence of teenage pregnancy in the 'most' and 'less deprived' households. A significant difference in the incidence of teenage pregnancy was, however, found in the Ugandan sample: only a very low proportion of young women in the 'most deprived' households (16.7 per cent) had their first child when they were mature - 20 years old or older - while a much higher proportion of the 'less deprived' (43.9 per cent) had their first child when they were mature (See Table 4).

Household size and deprivation

Household size has often been linked to poverty - larger households are usually believed to be more vulnerable to poverty. For example, an analysis of poverty in Uganda based on Living Standards Measurement Surveys (LSMS) concludes that 'the chronic poor have relatively large households... Those that have never been poor have small households' (Van Campenhout, 2016: 150).¹⁸ LSMS is regarded as the World Bank's 'gold standard' for measuring poverty: using LSMS and international or national poverty lines, analysts measure household expenditure *per capita* by dividing

survey estimates of household expenditure by the size of the household. If the denominator (i.e. the size of the household) is large, it is not a surprising arithmetic result that the incidence of poverty is higher in larger households: analyses of poverty based on the LSMS 'gold standard' usually agree on this result.¹⁹ By contrast, when using the EDI the 'most deprived' household size was considerably *smaller* (mean = 7.35 and median = 7) than the size of the 'less deprived' households (mean = 9.75 and median = 9). Large households with more than 10 members were rare among the 'most deprived', but more common among the 'less deprived' (Table 4). National surveys in both Uganda and Ethiopia also suggest that household size in the poorer wealth (not expenditure) quintiles is *smaller* than in the richer quintiles (DHS 2011: author's calculations).

The dependence of the most deprived on wage employment

Partly because many of the 'most deprived' households are small with limited access to adult male labour (and to agricultural inputs and credit), they face serious difficulties when attempting to survive through farming on their own account (Siyoum, 2012: 50 et seq). The implication - that their main or most reliable source of income may be seasonal wage labour - is rarely emphasised. It is still widely believed that very few rural African households depend on wage labour. The importance of 'family' labour in rural Africa (and the irrelevance of wage labour) is emphasized: 'adult household members contributed at least 90 percent of all labor devoted to crops (including child and hired labor) and 97 percent of all adult labor' (Palacios-Lopez et al, 2015: 7). This result stems directly and tautologically from the sampling strategy of the World Bank surveys (LSMS-ISA) that underpin these conclusions: these surveys excluded large-scale,

labour hiring agricultural enterprises; capitalist farms and estates were *not* included in any of the samples, because they aimed to be representative of ‘Agricultural Households’ (Lowder et al, 2016). Of course, rural households that did not ‘own or cultivate land’, i.e. proletarianised or semi-proleterianised rural households, were also excluded. The conclusion that income derived from wage labour only makes a minor contribution to rural household income is reinforced, again tautologically, because analyses of LSMS assume that incomes from remittances or transfers should *not* be considered part of rural household's wage-income stream, i.e. if a household member migrates in a desperate attempt to obtain seasonal agricultural employment and transfers her wages, these remittances should not be classified as contributing to total household wage income. Despite these confusing assumptions, almost a quarter of the rural households surveyed in Uganda and Ethiopia were found to be engaged in agricultural wage labour and ‘poorer rural households tend to have a higher rate of participation in agricultural wage employment...the share of income from agricultural wage labor is more important for poorer households’ (Davis et al, 2017: 161 and Table A2).

It has already been suggested that the households captured in the FTEPR survey are, on average, more deprived (in terms of educational attainment, for instance) than other rural households in Uganda and Ethiopia.²⁰ The FTEPR survey interviewed a statistically representative sample in wage labour-intensive export cropping areas. It was also specifically designed to ensure that wage labourers were captured: more than two-thirds of respondents in tea and coffee growing areas had, during the three years preceding the survey, been employed as manual agricultural wage labourers and, unsurprisingly, they live in households that appear to suffer from more acute

deprivation than the average rural household captured in nationally representative surveys. A respondent living in one of the 'most deprived' FTEPR households is particularly likely to have worked as a manual agricultural wage labourer. For example, in the Ethiopian Coffee sample, while about 65 per cent of all respondents had worked as manual agricultural wagers, a significantly higher proportion of respondents living in the 'most deprived' households (73 per cent) had done this type of work, compared to the proportion living in 'less deprived' households (58 per cent). In the Ugandan Coffee and Tea samples respondents living in the 'most deprived' households were also significantly more likely to have been manual agricultural wagers.

FTEPR investigated the labour market experiences not only of the principal respondent, but also of all the many other adults and children recorded on the Household Roster. Enumerators provided a qualitative description of the 'the most important single job done in the last year', using the length of time employed to assess 'importance'. These descriptions allowed us to identify two crude categories of job: the 'worst' and the 'more decent'. The 'worst' is a large category covering all the lowest paid and least desirable types of rural wage work, especially manual labour performed in the open air. Other menial jobs in this category include working as a domestic servant for a rural private household(s), and shining shoes. The 'more decent' jobs ranged over many different types of (mainly) *non-agricultural* wage employment in peri-urban as well as rural areas, including: nursing, teaching, police, supervisory work both in the field and inside processing plants and pack-houses, bricklaying, carpentry, electrical and construction work, mechanics, drivers, hairdressers, cooks, security guards. The

two largest groups of workers in this category were 'guards' and construction workers.

Insert Table 5 about here

Unsurprisingly, in all the research sites female respondents are much less likely than male respondents to have found employment in a 'more decent' job (Table 5). Besides, if no one on the household roster had secured a 'more decent' job, the household was likely to be 'most deprived' according to the EDI.²¹ For example, in the Uganda Coffee sample only a small proportion of the 'most deprived' households (about 19 per cent) had a household member who succeeded in obtaining a 'more decent' job, compared to about 36 per cent of all households (see Table 6). Escapes from poverty are conceivable if at least one household member can obtain more decent employment.²² Unfortunately, if a respondent works as a manual agricultural wage labourer, she is unlikely to live in a household where *anyone* listed on the Household Roster has managed to secure a more decent job in the last 12 months. This suggests that the consequences of deprivation can be cumulative; it may never be easy to escape from poverty by building on the success in the labour market of your parents or another household member.²³

Insert Table 6 about here

Conclusion and Policy Implications

At extremely low levels of income, deprived rural Africans devote most of their

expenditure to low-cost calories. But even when food intake is inadequate and child stunting remains common, they will also attempt to acquire a few non-food consumer goods, because owning these basic wage goods makes a real difference to the quality of their lives. It was easy to identify a few basic wage goods that ordinary rural people (in a variety of Ugandan and Ethiopian rural contexts) wanted to own. A small proportion of people in our research sites were defined as the 'most deprived' on the basis that they owned none, or only one or two, of these basic wage goods.

The 'most deprived' people appear to be similar to, but probably more deprived than, the bottom quintile of households ranked by per capita expenditure captured by far more expensive and extremely complex survey instruments, such as the LSMS (which devotes many hours to asking respondents more than 150 questions about their expenditures on basic goods). The 'most deprived' respondents identified so easily by the EDI were consistently and significantly *more* deprived than all the other respondents in the FTEPR survey in terms of their education and nutrition; the gender composition and size of their households; their vulnerability to the risks of teenage pregnancy; their dependence on manual agricultural wage labour; and their limited access to decent jobs. One (uncontroversial) policy response might be to proclaim the goal of reducing educational deprivation, especially by increasing the ability of rural girls to complete or even attend secondary school. Appropriate expenditures on education would probably improve the labour market prospects for rural women, but the targeting of these interventions - for example, scholarships or conditional cash transfers - towards the most deprived girls would be difficult, requiring an ability to resist powerful demands for wider inclusion.

Aid bureaucrats and members of the political elite in developing countries often vociferously espouse anti-poverty policies: ‘mainstream development policies have come to embrace a range of direct interventions, variously called “antipoverty programs,” “social safety nets,” and “social assistance”’ (Ravallion, 2015: 7). But in Sub-Saharan Africa, over the period 1998 to 2012, most of the poorest 20 per cent of the population failed to benefit from any of these anti-poverty programmes (ibid: 23). For example, the bottom 10 per cent of rural households in Ethiopia has suffered from declining consumption since 2005, while the 'Productive Safety Net Program (PSNP) excludes - by design - at least 52 per cent of vulnerable Ethiopian households' (World Bank, 2015: 12 and 49). Econometric evidence suggests that the PSNP has had no effect on household dietary diversity or children's height-for-age in participating households (Gebrehiwot and Castilla, 2017). Perhaps this is because the people benefitting from Ethiopia's PSNP (about one tenth of Ethiopia's population) were *not* selected by applying simple anthropometric rules or quantitative criteria; in practice, it proved ‘both technically and socially difficult to divide beneficiaries from non-beneficiaries’ (Sharp et al, 2006: 21). People have been excluded (graduated) from the PSNP for not supporting the political elite and also because ‘the criteria were subjective and no household data existed to support decision making’ (Cochrane and Tamiru, 2016: 657; Roelen et al, 2017: 22).

This type of outcome is predictable whenever local officials beholden to politically appointed leaders are required to distribute scarce resources. The political imperatives underlying resource allocation in rural Ethiopia have been described by Lefort (2012) and have also been illustrated by ethnographic research in seven different *kebeles*, which concludes that the ‘social protection

programme is being implemented in a way to eliminate opposition and...entrench power of the existing elite' (Cochrane and Tamiru, 2016: 655).²⁴ In these rural contexts, unreliable self-reported measures of 'food insecurity' and complex multidimensional indicators of poverty, not only bewilder conscientious policy makers, they may also be useful to less scrupulous elites, creating opportunities to ignore errors of inclusion and exclusion in targeting.

The EDI cannot be applied by aid bureaucrats to count the number of 'the poor' in the country as a whole, to track changes in this number over time, or to assume that households with a marginally higher index score, for example of 9 instead of 8, are 'less deprived'. In some contexts, however, the Index might play a progressive role: if easily and cheaply collected data expose the fact that current interventions offer few or no benefits to the poorest rural people, then pressures to introduce new policies may intensify, or at least become less easy to ignore. For example, if the EDI makes it increasingly obvious that vulnerable rural women depend on the number of days of wage employment they are offered (and the real daily wage rate), then there is a strong case for a new focus on relevant interventions: for example, a massive increase in expenditure to monitor and publish the wage rates of poorly educated seasonal workers; and a surge in investments to expand the demand (direct and indirect) for their labour in rural areas. Or, if international donors are funding Fairtrade rural co-operatives and schools, but the EDI shows that the most deprived people working for or living near these co-operatives have not benefitted from these donations (Cramer et al, 2014b), then it is possible that some aid agencies can be held more readily to account and will react to adverse publicity by re-examining their policies.

The great advantage of the EDI is the ease and low cost with which it can be constructed. A small team of fieldworkers spending only a week or two in purposively selected sites can quickly list the basic goods owned by extremely deprived people, a set of consumer goods characterized by a large and positive expenditure elasticities. A context-specific EDI may then be constructed for any site, in any country, as an instrument for identifying the most deprived and for assessing the effectiveness of interventions designed to address deprivation. We suggest that such an index may come to be an effective instrument in the governance of anti-poverty policy.

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Table 1:
Proportion of Respondents Owning Basic Consumer Goods

<i>Consumer Good</i>	<i>Ethiopian Coffee Survey (n=572) (%)</i>	<i>All Surveys in Ethiopia and Uganda (n=1710) (%)</i>
Torch	52.8	38.9
Table	48.8	52.2
Metal or Wooden Bed	43.4	59.3
Stove/cooker	33.7	39.6
Radio	32.0	48.2
Radio Cassette-CD	18.7	16.3
Thermos	21.2	29.7
Mobile Phone	15.9	26.5
Cupboard	9.3	20.0
Sofa Set	9.4	11.0

Table: 2
Most Deprived and Less Deprived Households: Educational Differences *

	Percentage Among <i>Most Deprived</i>	Percentage Among <i>Less Deprived</i>
Principal Respondent Illiterate	63.1%	50.3%
Principal Respondent Illiterate (Aged < 30 Years)	50.4%	37.4%
Principal Respondent Ethiopian Coffee Illiterate	68.3%	58.2%
Principal Respondent Ugandan Tea Illiterate	74.3%	60.6%
Principal Respondent (Aged 20-40 Years) No Schooling or Incomplete Primary	76.9%	54.2%
Principal Respondent (Female) Attended Secondary School	2.8%	17.3%
HH Roster Contains Individual who Completed Secondary School (Ethiopia)	3.8%	6.8%
HH Roster Contains Individual who Completed Secondary School (Uganda)	1.5%	3.7%
HH Roster Contains Child School Dropout (Ethiopia Flowers)	47.8%	33.3%
HH Roster Contains Child School Dropout (Uganda Coffee)	30.4%	17.1%

* Pearson Chi Square test suggests that all differences in proportions are significant ($p < .001$)

Table 3:
Most Deprived and Less Deprived Households: Differences in Diet: *

<i>Regular Consumption</i> (Consumed 1x or >1x per Week)	Percentage Among <i>Most Deprived</i>	Percentage Among <i>Less Deprived</i>
a. Beef /Meat	<u>7.1%</u>	<u>23.7%</u>
b. Eggs	<u>3.9%</u>	<u>17.0%</u>
c. Milk/Yoghurt	<u>8.5%</u>	<u>32.7%</u>
High Value Foods (a. or b. or c.)	<u>13.8%</u>	<u>45.3%</u>

* Pearson Chi Square test suggests that all differences in proportions are significant ($p < .001$)

Table 4:
Most Deprived and Less Deprived Households: Demographic Differences *

Female Dominated: >75% of Adults on HH Roster Female (Uganda)	16.8%	9.6%
Female Dominated: >75% of Adults on HH Roster Female (Ethiopia)	8.3%	4.7%
<u>No Male-Support (Entire Sample)</u>	38.1%	29.8%
<u>No Male-Support (Ethiopia Coffee)</u>	<u>61.5%</u>	<u>42.2%</u>
<u>No Male-Support (Uganda Tea)</u>	<u>47.1%</u>	<u>15.3%</u>
<u>Larger Household Size (> 6 Members)</u>	<u>20.4%</u>	<u>79.6%</u>
<u>Largest Household Size (>10 Members)</u>	<u>13.3%</u>	<u>32.7%</u>
<u>Smaller Household Size (<5 Members)</u>	<u>16.7%</u>	<u>5.3%</u>
<u>First Child Born When Age > 20 Years (Ugandan Women Aged 20-30 Years)</u>	<u>16.7%</u>	<u>43.9%</u>

* Pearson Chi Square test suggests that all differences in proportions are significant ($p < .001$)

Table 5:
Male and Female Respondents: Different Access to ‘More Decent’ Jobs

	Male Respondents	Female Respondents
Uganda Coffee Sample	23.61	9.15
Uganda Tea Sample	24.84	12.90
Ethiopia Coffee Sample	19.1	5.0
Ethiopia Flower Sample	61.74	32.52

Table 6:
Most Deprived and Other Households: Different Access to 'More Decent' Jobs

<i>'More Decent' Jobs as a Proportion of All Jobs Done by Household Members</i>		
	'Most Deprived' Households	All Households
Uganda Coffee Sample	19.3%	35.7%
Uganda Tea Sample	19.0%	32.2%
Ethiopia Coffee Sample	14.1%	21.6%

¹It is often argued that subjective assessments of welfare should be added to money-metrics (Posel and Rogan, 2016). One recently proposed index, the Relative Autonomy Index (RAI), aims to provide a direct measure of women's motivational autonomy (Vaz et al, 2016). Another, the ‘critical consciousness index’ seeks to measure levels of ‘the power within’ women (O’Hara and Clement, 2018). A less fashionable, non-attitudinal index has been proposed to track the quality of governance in public institutions - the Gross Toilet Index (Shobhit Mahajan, 2014).

² The degree to which asset or wealth indices can predict the distribution of consumption expenditure has been discussed by Filmer and Scott (2012) and, more recently, by Ngo and Christiaensen (2018), who also discuss the data requirements for Simple Poverty Scorecards that ‘cannot be estimated without some initial information

on the consumption behavior of the study population' (p.2). The initial information required for Scorecards and other types of survey instrument, including the World Bank instrument known as the Survey of Well-Being via Instant and Frequent Tracking (SWIFT), is a very recent (and high cost) Household Expenditure Survey (Dang et al, 2017: 24).

³ Some good reasons for mistrusting measures of poverty in Uganda using levels of expenditure per capita and derived from the Household Budget Surveys are discussed in Daniels and Minot (2015).

⁴ We do not claim that our simple index can precisely simulate or predict the distribution of expenditure (or of income) per capita among respondents' households. In debates about selecting the 'best' method of identifying the poor (or the best Proxy Means Test) the criterion continues to be the accuracy of different Proxy Means Tests in predicting per capita expenditure/income, as if policy makers should always regard expenditure as measured in Household Budget Surveys as the only relevant or the gold standard (McBride and Nichols, 2016). Some good reasons for mistrusting measures of poverty in Uganda using expenditure per capita and derived from the Household Budget Surveys are discussed in Daniels and Minot (2015).

⁵ The full range of consumer goods examined, as well as details concerning the project's methods, can be examined at: <http://ftepr.org/>

⁶ 'The current practice of limiting the set of asset indicators to durables and housing characteristics has been largely motivated by the ready availability of this information in the Demographic and Health Surveys and not necessarily by strong theoretical reasons' (Ngo and Christiaensen, 2018: 4). Many commonly used asset indices are unable to make distinctions between poor rural households, because these households do not own *any* of the included durables and housing variables (ibid).

⁷ The average data on the ownership of consumer goods suggests lower levels of deprivation in the Uganda sample, but some of the research sites in Uganda – the Kaweri and Ngomba coffee sites, for example – showed very low levels of ownership of consumer goods.

⁸ These 'luxury' items were selected by the World Bank when constructing their arbitrarily weighted Multidimensional Poverty Index (MPI) for Ethiopia. This is puzzling because national surveys suggest that well below two per cent of rural Ethiopians own these very costly durables (DHS 2011). The Bank grudgingly admits that in the Ethiopian context 'the MPI does not fully reflect living standards' (World Bank, 2015: 34).

⁹ The reliability of some of these claims to be representative is open to question (Cramer et al, 2014a: 173-4 and 181). The cost of these surveys is also very high: recent LSMS-type surveys in Uganda and Ethiopia required an expenditure of about US \$400 per surveyed household (Kilic et al, 2017: 21).

¹⁰ Earlier research has shown the limited ability of logistic regression to explain female vulnerability in rural Mozambique (Oya and Sender, 2009).

¹¹ ICF International, 2012. MEASURE DHS STATcompiler (<http://www.statcompiler.com>).

¹² Recent analysis - based on rigorous and extensive tests using data from 56 developing countries - concludes that 'maternal education has a significantly

larger impact on nutrition than paternal education, and that maternal education is characterized by increasing returns' (Alderman and Headey, 2017: 456).

¹³ On the relationship between mother's secondary education and stunting in Ethiopia see Ambel et al, 2015: 14).

¹⁴ In northern Uganda, the education of female caregivers has been found to be a good predictor of differences in the incidence of malaria in children (Tusting et al, 2016: 653)

¹⁵ <http://databank.worldbank.org/data/reports.aspx?source=Education-Statistics:-Education-Attainment&preview=off>

¹⁶ Both of these surveys indicate that the rural adult illiteracy rate is higher in Ethiopia (about 60%) than in Uganda (about 30%).

¹⁷ The relevant coded answers to the question about the frequency of support were: regularly/often; sometimes; and never. Access to adult male labour (or to seasonal remittances from male migrants) has been identified as a determinant of household deprivation elsewhere in rural Ethiopia (Sharp et al, 2003: 56).

¹⁸ Similarly, the national Household Income and Expenditure Surveys in Ethiopia provided the data for a probit analysis of the correlates of household poverty, concluding that: 'Larger households were more likely to be ultra-poor than smaller households *ceteris paribus*' (Abebaw and Admassie, 2013: 127).

¹⁹ In Vietnam, LSMS results linking poverty with large households have been criticized in detail by Dinh Vu Trang Ngan et al, 2012. In Bangladesh, the use of per capita expenditure has been shown to obscure dramatic changes in welfare/poverty captured by other indices and research (Davis and Baulch, 2011: 133).

²⁰ There are other examples of the relative deprivation of respondents in the FTEPR sample compared, for instance, to 'official' samples in coffee producing areas in Ethiopia: only about 13 per cent of respondents in the Ferro and Kochera smallholder coffee FTEPR research sites owned a mobile 'phone, compared to 53 per cent of coffee growers in the ESSP/IFPRI survey, which over-sampled large farmers who had achieved secondary or higher levels of education (Tamru and Minten, 2016: 8). In other FTEPR coffee research sites the prevalence of mobile 'phone ownership was about half the national prevalence in rural Ethiopia as recorded by the contemporaneous Ethiopia Rural Socioeconomic Survey (ERSS, 2013: 31). Similarly, in an IFPRI survey of "typical smallholders" growing coffee in Uganda, 76 percent of respondents owned a mobile 'phone and about 30 percent had a bank account (Chiputwa et al, 2014: 404; Chiputwa, 2017). The FTEPR survey of an overlapping smallholder coffee growing area (Masaka) found that only 38 percent of households owned a mobile 'phone and 5.5 percent had a bank account.

²¹ Respondents currently employed in a 'more decent' job are unlikely to have migrated to obtain that job. It appears that recent migrants are excluded from, or will experience greater difficulty in obtaining, a 'more decent' job. For example, in those research sites containing the largest numbers of recent migrants (Ziway, Jimma and Mubende) only about 7 percent of migrants have 'more decent' jobs, compared to about 20 percent of those who did not migrate to obtain their current job. Respondents in some research sites (Ziway, Mpanga, Mubende) are likely to be 'less deprived', if they did not migrate to obtain their current job.

²² cf. the evidence of intra-household externalities when one member of the household is literate.

²³ In the USA after 1945, a surprisingly similar story of cumulative disadvantage - rooted in a labour market that provided inadequate job opportunities for people with low education - is discussed in Case and Deaton (2017: 29 et seq).

²⁴ In Uganda, donor-funded technical reports on how to select the beneficiaries of antipoverty programmes have been brushed aside: "‘commitment’ to social protection emerges as a somewhat half-hearted and instrumental embrace of yet another form of vote-buying clientelism" (Hickey and Bukenya, 2016: 18). Methodological flaws undermine the credibility of official Ugandan estimates of trends in the real consumption of the poorest quintile (Van Campenhout et al, 2016). More generally, the methods used to obtain the data on poverty used for policy-making purposes are often opaque or unavailable (Walters et al, 2012).