Introduction

In Senegal the number of destitute children begging in the street is becoming alarming, especially in the Dakar region, and has drawn growing attention by the Government, as well as by international and non-governmental organizations. Raggedy begging children are a common sight in many urban centers. They beg where human traffic is high – at busy street intersections, in front of supermarkets, mosques, banks and markets. Usually aged less than 15 years, these children are extremely poor and face severe living condition. They are often exploited, and they are also likely to be victims of human trafficking, sexual abuse and a various types of violence.

The translation of the increasing attention by policy makers to the issue of begging children into concrete policy action, however, has been hampered by the lack of reliable information on the number and characteristics of the target population. This is far from uncommon when a population is
elusive and difficult to access and it illustrates the difficulties of formulating appropriate intervention strategies and monitoring their achievements.

In this paper we present an application of capture-recapture and respondent-driven sampling techniques to the estimation of the number and characteristics of children begging in the streets. We will show how the use of these techniques can generate estimates that are sufficiently reliable and, especially, that can be verified and improved upon in the course of time because they are based on replicable approaches. As it will become apparent from the evidence presented, however, this kind of techniques relies on a set of strong assumptions that need to be verified in the field, and on a correct implementation that requires close monitoring. Very few of this kind of exercises are currently being carried out and this severely limits the possibility of assessing the validity of the results and of improving on the implementation approaches followed. Nonetheless, many of the worst forms of child labour that generate wide policy concerns and programmatic actions, concern populations that are elusive, like the begging children of Dakar, and this calls for more work in this area, leading also to some systematization and cross verification of the approached followed.

This paper presents a detailed profile of begging children in the Dakar region, and it also identifies some strategic options to accelerate and reinforce the national response. Finally, it is worth underlying that while this study is representative of the situation of begging children in the region of Dakar, most of whom report being Koranic students (talibés), it is not representative of the general living conditions of talibés children attending a Koranic school known as a daara (i.e., while almost all of the begging children come from a daara, not all children from a daara are begging children).
Statistical methodology

Statistically speaking, child beggars are a « rare » and « difficult to access » population. « Rare » because they represent a very small proportion of the overall child population, and « difficult to access » because they tend to be elusive and to hide when they are not working. Several sampling methods have been devised by statisticians to study this type of population and produce representative data. Two of these methods were used in this study. The first is a specific procedure called capture-recapture that makes it possible to estimate the size of a given (rare and difficult to access) population. The second, respondent-driven sampling (RDS), it used to generate population profiles data.

Capture-recapture

This methodology makes it possible to estimate the size of populations for which a comprehensive census is impossible, and to produce data representative of these populations (Jensen et Pearson, 2002). Sampling through capture and recapture is based on a double sampling. It requires producing two separate lists (one for the capture and one for the recapture), each representing a sample of the population to estimate. The number of individuals on each of the lists is then computed, as well as the number of individuals who are on both lists. Estimates of the size of the target population are then obtained on the basis of these three figures.

The basic methodology, which has been used for a long time, was introduced by ecologists as a way to estimate the number of wild animals in a given area. It has since been applied to various scientific fields. In demography, it has served to compensate for under-representation in censuses, or to estimate birth and mortality rates in developing countries. More recently, it has been used to estimate human populations difficult to count: street children, homeless people, drug and alcohol users, sex workers, homosexuals or HIV/AIDS affected people (Gurgel et al. 2004,
In the case of our study in the greater Dakar metropolitan area, the first capture took place in November 2006 by criss-crossing all the areas known for the presence of child beggars and counting all the children found begging. Both the selection of the focus areas and the census of the child beggars were carried out with the help of key-informants, who were primarily street educators and other representatives of NGOs working with street children. The census took place during the day, as little begging is carried out at night and many of the children were known not to spend the night in the street. For the second capture (Capture II), the sampling method was respondent-driven. Children included in both Capture I and Capture II were considered « recaptured ».

On the basis of the results of Capture I and II the total population $N$ is estimated following the method of Peterson (Krebs, 1999):

$$\hat{N} = \frac{(M + 1)(C + 1)}{R + 1} - 1$$

Where $N$ is the estimated population, $M$ is the number of children identified during Capture I, $C$ the number of children identified during Capture II and $R$ is the number of re-captured children (i.e., of children
present in both Capture I and II).

The confidence interval is given by:

\[
CI = \hat{N} \pm 1.96 \sqrt{\frac{(M + 1)(C + 1)(M - R)(C - R)}{(R + 1)^2 (R + 2)}}
\]

The following Table reports the estimates and the confidence intervals by district in greater Dakar.

<table>
<thead>
<tr>
<th>District</th>
<th>Population estimate</th>
<th>95 per cent confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dakar</td>
<td>2 253</td>
<td>2 171 - 2 339</td>
</tr>
<tr>
<td>Guediawaye</td>
<td>1 482</td>
<td>1 413 - 1 556</td>
</tr>
<tr>
<td>Pikine</td>
<td>1 914</td>
<td>1 825 - 2 010</td>
</tr>
<tr>
<td>Rufisque</td>
<td>1 878</td>
<td>1 798 - 1 964</td>
</tr>
<tr>
<td><strong>Greater Dakar</strong></td>
<td><strong>7 549</strong></td>
<td><strong>7 386 – 7 718</strong></td>
</tr>
</tbody>
</table>

The validity of the capture-recapture estimates is based on four basic assumptions (Jensen and Pearson, 2002):

(a) the population studied must be closed, meaning that it is not affected by births, deaths or migrations during the sampling process;

(b) each individual’s probability to be captured is different from zero;

(c) individuals already surveyed must be clearly identified;

(d) having been captured does not have any incidence on the probability of being recaptured.

In the case of begging children in the Dakar metropolitan area, the validity of first assumption concerning the closeness of the population can be argued. Child beggars cannot be considered as a close population as they are eminently mobile. However, the Capture I and Capture II phases were carried out in a very short time (24 to 48 hours), so the number of children who could have left or arrived (or died) was negligible. Should
the survey have lasted longer, it would have been difficult to obtain reliable estimates, as the population studied during Capture II could have been significantly different from that of Capture I.

According to the second assumption, researchers must make sure that for each child beggar the possibility of being captured is different from zero. During Capture I all places where child beggars can be found were visited. However, other children who do not go out begging during the day or are more difficult to locate could be by-passed by Capture I. Adopting a different methodology for Capture II made it possible to overcome this problem and cover the total population of child beggars in the Dakar metropolitan area. In the respondent-driven sampling, children were approached through the social networks of other child beggars. Thus, all children in greater Dakar had a chance to be captured regardless of the time or place in which they beg. The validation of the second central assumption is therefore assured by combining the sampling methodologies of CR and RDS.

The third assumption posits that researchers have to be able to clearly identify the children who have already been interviewed. At the beginning of the survey, during Capture I, respondents were marked by putting nail polish or a sign with a permanent marker on a fingernail. However, certain children objected to this procedure because of religious concerns –they explained that marking their fingernail could invalidate their prayers. On the other hand, both the research supervisors and the enumerators (mostly street educators and NGO workers) claimed that they could easily recognize the children already surveyed and that children responded honestly to questions. The physical marking of children was therefore stopped, and the third assumption was verified simply by asking children whether they had already been asked questions one or two days before.
The forth assumption posits that the probability of being included in the Capture I lists has no impact on the probability of being part of the Capture II list. During Capture I none of the children was told about Capture II. Mentioning that rewards would have been given during Capture II could have attracted a lot more child beggars in the selected areas and influence the probability of their recapture. On the other hand, questionnaires used during Capture I were kept very short and simple so as not to discourage children from showing up for Capture II. Had questionnaires been long and complicated, children already surveyed would have tended to stay away, thus reducing their likelihood of being recaptured.

**Respondent-Driven Sampling (RDS)**

RDS aims at gathering qualitative data on the target population. It is a snow-ball sampling technique used to identify hidden populations, such as drug users, street children, or musicians (Heckathorn 1997; Heckathorn 2002; Heckathorn et al 2002). This method is particularly well-suited for populations for which it is impossible to carry out a comprehensive census.

The method is based on the assumption that respondents are doubly motivated because they are rewarded for having answered to the survey questions and for having recruited other respondents belonging to the target population. (Heckathorn 1997; Heckathorn 2002; Heckathorn et al 2002). This has been the case for the respondents to our study.

Several questions were posed to child beggars to gather data on their characteristics and their life conditions. This information was helpful in gaining a better understanding of the phenomenon of child beggars (the questionnaire used during Capture II is available on request).
**Survey implementation**

The field team consisted of social workers from NGOs with a long experience working with street children (Samusocial, Avenir de l’enfant and Enda GRAF). They were precious key-informants to identify the places where child beggars tend to gather, as well as in understanding and interpreting children’s answers and in keeping “cheating” in check. Eight experienced enumerators were recruited from the National School of Applied Economics (ENEA). Before launching the field work, the whole team was trained in the approach by a Norwegian specialized research institute, FAFO, which also oversaw data input. Consistently with the study design, the survey was carried out in two phases.

**Capture I**

The first phase of the survey consisted of counting (or « marking ») child beggars in each site. As mentioned earlier, enumerators criss-crossed all neighborhoods focusing on places where child beggars were known to gather, and registered all child beggars on a list. No site was visited more than once, so that each child beggar had one chance of being counted. It must be remembered that the objective of this methodology is not to count all child beggars, but to give all child beggars an equal chance of being counted. All children were asked 8 questions --age, sex, whether the previous week they begged, where they slept, who gave them a place to sleep, and whether they went to school (Koranic school). Children were not told about the second phase, so as not to influence their chance of being recaptured. Overall, 1062 children were interviewed during Capture I.

**Capture II**

Capture was carried out the day after Capture I. To start, three children in each site were selected as initial contacts. These children received a packet of cookies for having accepted to answer the (this time longer) questionnaire. Each child was then asked to go and “recruit” three other child beggars to take part in the study. When he came back with three
other child beggars, the child was given two cans of sardines as a reward. The new children were interviewed, and in turn asked to go find three other child beggars, and so on. Throughout the process, the double motivation was applied: children received a packet of cookies after responding to the questionnaire and two cans of sardines after recruiting other respondents. This process was repeated seven times, producing a total of 1619 respondents. The questionnaire used during Capture II was four-page long and collected information on the characteristics of child beggars (e.g., family situation, possessions, schooling, health problems and aspirations).

This method has a potential shortcoming: it is possible that the sample ends up comprising only individuals sharing the same social network, and therefore is not representative. It is therefore important that the initial recruitment be done by including the largest possible number of groups within a research site. Basically all children surveyed during Capture II were Koranic students, even though the initial contacts came from different groups of child beggars including those who were not Koranic students (e.g., in one of the sites, two out of three were not talibés). This suggests that child beggars who are not Koranic students are indeed much less numerous.

**Characteristics of the begging children**

In this section we present the main results from the survey in terms of number and characteristics of the target population.

In the Dakar metropolitan area alone, about 7,600 children regularly beg in the streets: more than 2,200 in Dakar district (30%), 1,900 in Pikine district (25%), 1,880 in Rufisque district (25%) and 1,480 in Guédiawaye district (20%).

Age. Begging children are typically very young: their average age is 11 years, and the youngest child interviewed was less than 2 years old. About
half of them are aged less than 10 years (see Figure 1).

**Figure 1. Distribution of begging children by age group (%)**

Sex. Male children virtually represent the total of begging children, and the overwhelming majority (90%) are *talibés*.

**Place of origin.** Almost all (95%) of the begging children in greater Dakar originate from elsewhere, either from other regions of Senegal or from neighbouring countries.

**Figure 2. Distribution of begging children by place of origin (%)**

---

1 For the purpose of this study, *talibé* is defined as each child who declared to have spent the previous night in a Koranic establishment, and to receive a religious teaching.
Such situation depends mainly on migration from the poorest regions, on droughts, and on food insecurity:

- Harsh conditions in rural areas frequently determine the relocation – permanent or seasonal – of the Koranic schools to urban areas. The majority of begging children, and particularly *talibés*, originate from the poorest regions, i.e., Kolda and Kaolack. By contrast, non-*talibés* begging children mainly come from Dakar region.

- Nearly half of the begging children found in Dakar are from neighbouring countries, principally Guinea Bissau, Guinea, Mali and Gambia. Again, the country of origin seems to influence the characteristics of begging children: *talibés* are usually from Guinea Bissau (30%); non-*talibés* originate from Mali (30%)

**Ethnic group.** Disaggregating begging children by ethnic group shows that the Peuhl and Wolof ethnic groups account for the largest proportion of the child begging population, 66 and 25 percent respectively. Among non-*talibés* begging children, the proportion of Peuhls ethnic group is the smallest (36%).

**Reasons for living the family.** Begging children generally left their community because they were fostered by their parents to a Koranic teacher, *marabout*, to receive a Koranic education.

**Reasons for begging.** Virtually all *talibés* (98%) reported that their marabout sends them to beg; by contrast about 62% of non-*talibés* declared that begging aims at satisfying their needs or their family’s needs. Finally, more than 12% of non-*talibés* begging children accompany a person with disability: they can therefore be considered as «begging escorts». 
Orphanhood. Only 3% of begging children declared to be orphans. The proportion of single orphans is higher for non-talibés than for talibés. About 37% of begging children reported staying permanently in contact with their family. Begging children without any contact with their family are more represented in the 2 to 8 age group.

Living condition of begging children
Begging is a full-time « job »; children spend an average of six hours each day on the street begging (obviously, talibés children has a limited time to learn koranic teaching). It is worth underlying that non-talibés children spend more time for begging than talibés. Begging children are on the street during the full week, without rest. They can also resort to other economic strategies to survive (as an example, working as porter, collecting garbage, and doing some small commerce).
The income earned by talibés children goes most entirely to the marabout. Not only talibés have to satisfy their own needs, but they have to beg for the biggest part of the day and they daily deliver the money to the marabout. The average income of begging children is about 450 CFA per day. Talibés’ earning (400 CFA as an average) is definitely lower than non-talibés’ one (700 CFA on average); the amount that the former deliver to the koranic teacher is about 300 CFA.

Talibés children live in the koranic school, together with the marabout. By contrast, more than a half of non-talibés children reported to have spent the previous night in the street. The lodging conditions of the begging children are extremely insecure. Exposed to illness, epidemics and bad weather (cold, hot, wind, rain, etc), begging children do not sleep much and rest only for the time strictly necessary; they do not wash themselves and do not care of themselves. As an example, only 29% of begging children reported having blankets and only 6% mosquito nets.
The majority of begging children is undernourished. Their daily diet, mainly composed of rice and bread, is not enough to satisfy their development and growth needs. Slightly more than half of children declared having eaten legumes and only one child among five consumes fruits or meat. Undernourishment is undoubtfully linked to begging children’s health problems. Diarrhea, abdominal pain, fever, skin problems and malaria are among the ailments commonly cited.

The overwhelming majority (91%) of begging children declared having attended koranic school. 21% of non-talibés is attending the choranic school, and 78% of them has no education at all.

As regards their ambitious, begging children declared that they would like to attend school (4%), a better job (about half of them), and to become a marabout (25%). For the latter group, being a marabout represent a concrete possibility, and a way to ameliorate their living conditions.
Very few children benefit from any form of social assistance programmes, and the proportion of children accessing social benefits is increasing with age.

**Policy Implications**

On the basis of the results of our analysis a set of policy interventions can be identified. In particular, the fight against child’s begging can be articulated around three main components: protection, prevention and strengthening of national capacity.

**Protection measures**

Protection measures aims at ameliorating begging children’s living conditions, to facilitate their rehabilitation and reintegration, and to impede to fall back in begging or in other worst forms of child labour. Such measure are needed to avoid large numbers of children entering adulthood in a disadvantaged position, and to reduce the risk these children becoming future unemployed, poors or those living at border of the law.

Protection measures can be classified in:

- short term: support to the initiatives of solidarity at community level (« marrainage »); support to transitory emergency actions aiming at reducing begging children’ extreme vulnerability; amelioration of living conditions in the daaras (relating to diet, water and health needs); severe enforcement of the existing laws protecting children, including control and sanctions; reinsertion of children in the family; training of the personnel in charge to let the law be applied (including the officials of the police Brigade specialde des mineur, with the mandate to identify and protect children at risk of moral hazard); reinforcement and adjustment of the social programmes, to guarantee that formers street children
have access to social services;

- medium term: launch of sensibilisation campaigns to raise awareness and to modify attitudes and behavior of the target population; mobilization of the religious authorities, as well as actors at community level, who could play an important prevention role in the migration to urban centres; elaboration of an argument against child’s begging and reinforcing the dialogue between the leading muslim confraternities; regulation of places and timetables to collect and give alms; institution and/or reinforcement of the rules inside the daars;

- long term: support of the component, in long term programmes, aiming at withdrawing talibés in specific urban daaras, where children are exposed to maltreatment and bad living conditions; incentives to marabouts to re-build the link with the community of origin of their talibés; amelioration of daaras conditions, at least from a material perspective; training and education programmes; establishment of set of laws to set up daaras; training and pedagogical framing of the koranic subjects; creation of daaras by qualified religious authorities in the community, as to permit talibés to come back in the evening.

Notwithstanding the efforts by NGOs and other development actors, the majority of begging children in Dakar do not benefit from any external assistance. Considering the living conditions, as highlighted in the report, intensifying the efforts to ameliorate their well-being constitutes a priority.

**Prevention measures**

Prevention measures constitute the most important component of a policy response to child’s begging. Clearly, eradication of child’s begging cannot be attained without addressing the factors causing children to beg on the street.
The following components has to be integrated into the existing prevention measures:

- reducing household vulnerability and put in place social protection measures in the areas of origin of the migrant children;
- put in place programs of conditional cash transfers in favour of vulnerable families;
- reducing the barriers to school access and increase the quality of education, to so that families have the opportunity to invest in their children’s education and it is worthwhile for them to do so;
- support the daaras in the community of origin, to avoid that family has to foster children to provide them with a religious education;
- facilitate the return of migrant marabouts to their village of origin;
- support the creation of income generation activities for the marabouts, and hence reduce the incentive to migrate to urban centres;
- broaden the contents taught in the koranic schools, including professional training as to facilitate the entrance in the labour market, and promote the education in national languages, Arabic and French.

The results of the study showed that a vast majority of begging children in Dakar originate from other regions of Senegal and from neighbouring countries. Therefore, prevention efforts has to be directed not only to Senegal, but to emigration areas, inside and outside Senegal. Moreover, the study found that the virtual majority of begging children attend daaras: religious authorities therefore has to be mobilized during prevention process.
Finally, efficient prevention measures cannot be attained without a deep understanding of the household decision process. Therefore, future research efforts have to focus on the identification of the factors influencing such process.

**National capacity**

A solution to child’s begging cannot be attained without a favorable national environment, at political, legislative and institutional levels. Political commitment has to integrate the challenge of child’s begging into the main national programmes.

Child’s begging involves each sector and ministry. An efficient exploitation of the state resources, as well as its partners, can be supported through:

- an increased institutional convergence, as regards the strategies definition and coordination of interventions;
- a precise definition of roles and responsibilities;
- creation of a mainstreaming system to diffuse information;
- evaluation of previous intervention, to identify their impact and efficacy;
- Identification of «best» practices, to reproduce them at a larger scale.

**Conclusions**

This paper presents an application of CR and RDS techniques to the measurement of the worst forms of child labour. In particular, we have described the process to obtain a reliable estimate of the number and characteristics of begging children in greater Dakar, Senegal. The results show how it possible to obtain sample-based estimates for this rare and elusive population, albeit a series of issues concerning the validity of the
assumptions on which such estimates rely and on their practical implementation still remain open. We have also illustrated how, on the basis of such analysis relevant policy conclusion can be derived. Beyond the particular case discussed here, it must be stressed that the paucity of studies using these techniques hinders progress in refining this methodology as well as cross validation. We think that more resources and bigger efforts in the diffusion of results are necessary to make progress in the quantification of some of the worst forms of child labour.
References


