

## IDENTIFYING BPL HOUSEHOLDS: A COMPARISON OF COMPETING APPROACHES

### Introduction

The primary objective of the study is to compare competing approaches of identifying households Below the Poverty Line (BPL). The two methodologies that will be compared and subjected to fairly intense scrutiny are the Score-Based Ranking (SBR) approach proposed by the N.C. Saxena Committee and an alternative proposed by Jean Dreze and Reetika Khera in their paper, *The BPL Census and a Possible Alternative*.

The BPL Census will be carried out in 2011 and the ideal method to adopt is still in the process of formulation. The choice between various approaches, the centre of which are the above mentioned two, is a raging debate. The ideal approach needs to satisfy a whole range of criteria, but in essence and in the broadest sense, two main factors are pivotal: identification and implementation. Identification involves ensuring inclusion of the most deserving households into the BPL list. Implementation implies ensuring that the process of identification is done with as little cost—in terms of labour and time—as possible.

Both the aforementioned methodologies have been proposed on the basis of secondary data: the N.C. Saxena Committee uses the collective wisdom of their experienced panel, lessons from previously carried out surveys and “informed guesses”<sup>1</sup>; Dreze and Khera, for their part, test their hypotheses on data from NFHS—3, a survey carried out nearly half a decade ago. There is very little actual field-testing done on these approaches and, from therein, arose the need for the current study.

This paper is an attempt to address some of these concerns, question certain components of the proposed hypotheses and wherever possible, provide pointers towards what could be done. The findings of this paper are based on a study of five villages—469 households—in Udupi district in Karnataka. The study was carried out over six weeks from late April to early June, earlier this year.

### Area Sampled and Sampling Strategy

Udupi District, the district from which villages were chosen and households sampled, is amongst the better-off districts in Karnataka. Formed fairly recently—a little over a decade ago—the district, with a literacy rate of 81.25<sup>2</sup>%, ranks third overall and, if one narrows down

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<sup>1</sup> “The proposed method does not draw on any data analysis or field testing, and even its conceptual foundations are far from clear. It is largely based on informed guesses about appropriate scoring formula” [The BPL Census and a Possible Alternative, Jean Dreze and Reetika Khera]

<sup>2</sup> Udupi District HDI Report, 2008.

the criterion to Rural Literacy, second behind neighbouring Dakshina Kannada. The district ranks 6<sup>th</sup> amongst 27 districts<sup>3</sup> in the state in terms of per-capital income.

Udupi District has three Taluks—Udupi, Karkala and Kundapura. It was from Kundapura Taluk, comprising nearly a hundred villages, that five villages were randomly picked for the purpose of the study. Kundapura Taluk is easily the least well-off of the three Taluks with respect to a whole host of indicators: it has the highest number of poor in the district and its literacy rates are more in line with the rest of the state.<sup>4</sup>

After consultations with local academicians, workers and analysis of the well-compiled secondary data available, it was decided that Kundapura Taluk would be chosen as the Sampling Frame. The reason for doing so is two-fold: one, as previously mentioned, Kundapura has a hundred villages: this implies a large enough sample size for Random Sampling. Two, Kundapura is also a heterogeneous region comprising big and small villages; while the ones close to the highway are fairly prosperous, sufficiently well-connected and have literacy rates a shade under that of Kerala, those in the interiors can only be reached by foot, have a large proportion of backward castes and tribes and don't have access to even the most basic of amenities.

### **Introduction to the Methodologies**

The Saxena Committee approach proposes a Score-Based Ranking system. This resembles, at least in form, much of the earlier BPL censuses, but, on paper at least, is an improvement over them. Broadly, the methodology looks at a sum total of eleven household characteristics—ranging from occupational to community-specific, literacy to health-indicators<sup>5</sup>-- all of which are indicative of the socio-economic status of a household. For each of these above characteristics, a certain specified number of points are awarded. The higher the number of points being awarded for a characteristics, the stronger is the correlation of the characteristic to household poverty—for example, if a household is from an obviously disadvantaged class like STs, then four points are awarded, but if it is a household from an OBC background, only a single point is awarded. These points are aggregated over all the characteristics of a household and each household gets a certain number of total points, its score. Each Gram Panchayat is

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<sup>3</sup> Ibid, Page 96.

<sup>4</sup> The Directorate of Economics and Statistics puts its estimate of people below the Poverty Line at 28%, 4% above the District average and 6% above Karkala Taluk of the same district. The Census of India, 2001 puts down the number of BPL families in Kundapura at 45.3% of total households. This figure is again much higher than the corresponding ones for either of the other two Taluks. The Rural Literacy rates stands at 74%, nearly 10% short of Udupi Taluk. The Education Index is 0.791, by itself a satisfactory number, but Karkala and Udupi have corresponding figures of 0.944 and 0.898 respectively. Despite this being the case, the Taluk still holds its own when compared with Taluks across the country. (Ibid)

<sup>5</sup> See the Appendix for a more detailed exposition.

given a quota—a fixed number of households to be classified as poor. This quota is exogenously determined. Based on the quota, a cut-off score is set and every household having a score beyond this cut-off is classified as poor<sup>6</sup>.

The Dreze and Khera approach is vastly different. It entails the specification of certain inclusion and exclusion criteria on the basis of which households are either included or excluded. For example, if “landline phones” is a component of the “exclusion criteria”, then every household that owns a landline phone is excluded from the list. Similarly, if “landless households” are a component of the inclusion criteria, then household that has no agricultural land is included in the BPL list<sup>7</sup>. However, what if a household owns both a Landline Phone and has no agricultural land? In order to solve this conundrum, they specify four distinct combinatorial approaches arising from these exclusion and inclusion criteria.

**The Exclusion Approach:** Reject a Household from the List *if and only if* it satisfies any of the Exclusion Criteria.

**The Inclusion Approach:** Include a Household *if and only if* it satisfies any of the Inclusion Criteria.

**The Play-Safe Approach:** Reject a Household *only if* it satisfies any of the Exclusion Criteria and does not satisfy any of the Inclusion criteria

**The Restrictive Approach:** Include a household *only if* it satisfies any of the Inclusion Criteria and does not satisfy any of the Exclusion Criteria.

The first and the fourth approaches—the Exclusion Approach and the Restrictive Approach—are those that give primacy to exclusion criteria i.e they do not select houses that are excluded, irrespective of whether they satisfy any of the inclusion criteria. The second and the third give primacy to inclusion criteria—they include *all* houses that satisfies inclusion criteria in the BPL list. (See Appendix for a mathematical and a diagrammatic formulation)

### **Structure and Key Findings**

This paper is divided into seven sections: the first involves an examination of the approach put forward by Jean Dreze and Reetika Khera to identify houses below the poverty line. This section involves detailed scrutiny of various inclusion and exclusion criteria that their paper proposes and draws lessons from such an inspection. In the second section, one looks at the Score-Based Ranking (SBR) system proposed by the Saxena Committee and how different households are

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<sup>6</sup> This is only a broad description that brushes over several intricacies. For a more detailed description, see the Committee Report.

<sup>7</sup> Dreze and Khera prefer the term SAB—Social Assistance Base—List to BPL, but I use these terms interchangeably.

ordered under it. This primarily entails drawing a comparison between a household's points and indicators of economic/social prosperity such as assets owned, occupational status and suchlike. The first two sections would, in effect, present a contrast in the two methodologies in their approach to tackling the same issue. The third and fourth sections provide a direct comparison of the two competing approaches. While the third looks at exclusion errors and intersection sets and the reasons for the same under the two methodologies, the fourth consists of a comparison of feasibility of implementation of the two approaches. The latter looking at three main issues: time and cost issues, transparency and verifiability. The penultimate section looks at an alternative approach— a method that is somewhat half-way between the two approaches analysed thus far and looks to address the problems inherent in both. The final section comprises some concluding remarks.

The key findings of this study are briefly summarised here.

One, the bottom fifteen percent of the households sampled are classified as poor under both the methodologies, irrespective of which of the four approaches one chooses from the Dreze and Khera method.

Two, if one focuses on the bottom 25-30 percent of households classified as poor under each of these competing approaches, what emerges is that both the methodologies commit a certain degree of exclusion errors. There exists a few typical households that seem objectively poor but somehow slip away from the grasp of at least one of these approaches.

Three, the considerable divergence in numbers within approaches in the Dreze and Khera methodology is partly endemic to the region studied and partly inherent to the manner in which these criteria are constructed.

Four, both the inclusion and exclusion criteria specified by the Dreze and Khera approach have some components that are questionable—not always only in the context of the area of study—and whose presence is not entirely justified.

Five, the Saxena Committee's methodology, if seen as only a tool to *rank* households, does a fairly good job.

Six, however, when it comes to implementation, the Committee's approach seems to confirm what was feared—that it is costly and easy to manipulate.

And finally, the alternative approach proposed is theoretically justifiable and throws up numbers, at least in the present study, that are satisfactory.

### **The Dreze and Khera Approach**

The Dreze and Khera paper describes four ways to count the number of poor in a village. All of these are based on some combination of the simple inclusion and exclusion criteria specified in their Paper. The overall figures for the number of poor in the sample quite dramatically swing from 26% (when the rather strict “Restrictive Criteria” is used) to 73.3% (when the far more lenient “Play-safe Approach” is adopted). These numbers are intriguing and not quite in line with what the Paper’s own data analysis based on NFHS-3 data for 2005-06 suggests. The reasons for this divergence in numbers, not just between approaches, but also between the current study and the analysis in the Paper are discussed below.

### **Divergence in numbers between the present Study and the Dreze and Khera Analysis**

The NFHS-3 data, based on which Dreze and Khera draw their conclusions, has been collected for rural households across the country. By the calculations Dreze and Khera carry out in their paper, states such as Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh and Rajasthan rank below Karnataka in terms of assets owned and therefore, proportion of houses excluded. In fact, the numbers point to the fact that Karnataka is a state that is some way ahead of the national average, though not quite in the league of Kerala<sup>8</sup> or Punjab. Udupi, being easily amongst the better districts welfare-wise, would evidently throw up numbers that would far surpass those of the national average. This explains the considerable divergence of figures of the study from those calculated by Dreze and Khera.

### **Divergence between Approaches**

The divergence between approaches is not as clear-cut. Some amount of divergence is built into the approaches—even the Dreze and Khera analysis shows similar trends— but the contrast in numbers in this study are far more stark. The fact that the number of poor nearly doubles if one moves from an exclusion-based approach to an inclusion-based approach indicates that a considerable proportion of people are both asset-owning and disadvantaged socially or economically. The actual inspection of divergence amongst approaches is two-fold: firstly, the inclusion and exclusion criteria that form the core of these approaches are subjected to statistical and socio-economical scrutiny. Then, the numbers generated by these approaches are examined in the light of the above analysis.

### **Inclusion Criteria**

**Single Woman Headed Households** are included directly because “households headed by a single woman suffer many economic and social disadvantages that may not be captured in

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<sup>8</sup> Udupi is barely two-hours from North Kerala. While this in itself does not mean much, it must be noted that the people share similar climates, have a similar zest for education, are fastidious in their approach to cleanliness and punctuality and are competitive, if only passively.

asset-based indicators”<sup>9</sup>. The Paper also refers to the “economic vulnerability of widows in general”. The fact that even the Saxena Committee, in its Report, backs their Automatic inclusion in the BPL list<sup>10</sup> makes their inclusion an open-and-shut case. Though that may be true generally, it does prove productive to dig a little deeper in the context of this study.

Numerically, Single-Woman headed Households make up nearly 20 percent of the total Households surveyed—86 out of 469. This is quite a high number, a fact to which we will return to later. Their inclusion in the Automatic Inclusion Criteria in this region in purely economic terms as measured by assets owned is, at best justified and at worst ambiguous. 52 percent of all Single-Woman headed households own a TV, as compared to 57 percent for the those households not headed by widows. While there is a greater difference in the other numbers, only scooters turn out to be significant at the 5 percent level of significance. 48 out of 86 such households are excluded based on the Exclusion criteria. This seems like a fairly high number, but the corresponding numbers for Non-Single Woman Headed Households are significantly higher at the 5 percent level of significance.

Furthermore, the cause for there being such a high number of Single-Woman headed Households stems from one main factor: a considerable proportion of households are traditionally matriarchal<sup>11</sup> and therefore, it is in the woman’s name that Ration Cards etc., are made. About 50 percent of Single-Woman headed households are headed by women who have crossed sixty. Although this might, on the surface, seem like a cause for concern, a considerable proportion of them have sons who stay with them and act as bread-earners, taking up the responsibility of running the household. Therefore, the picture of a single mother, fighting against all odds to make ends meet is somewhat incorrect. Socially too women are empowered due to a whole host of factors. Of them, the most prominent are a “matriarchal system, favourable sex ration, high literacy amongst men and women, better infrastructure in education, health, transport and communication ... a strong Stree Shakti movement and SHG movement ... apart from historical background”<sup>12</sup>.

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<sup>9</sup> “The BPL Census and a Possible Alternative”, Jean Dreze and Reetika Khera.

<sup>10</sup> “In a predominantly patriarchal society, where a woman’s legitimacy derives from her dependency on a male, a ‘single woman’ who transgresses this norm is considered a deviant from the social norm and faces exclusion”, the Committee Report.

<sup>11</sup> I first came across such a case on my first day of surveying. I met a Beedi Cutter, Gulabi and her five-year old son in Shankaranarayana who told me that she was the household head. I asked her how she managed to make ends meet all by herself, what with having a child to send to school. Surprised, she said her husband, who was away, visiting his parents in *his* village was a Coolie and earned a reasonable sum.

<sup>12</sup> Udupi HDI Report, 2008.

The rest of the inclusion criteria are a shoo-in, even in the context of the area of study. To summarize, we have a large number of people included in the Social Assistance Base (SAB)<sup>13</sup> List. The numbers are large, but not quite as high as those expected for far more deprived areas in the state (like Bijapur) or even deprived states (like Bihar). While most of the Inclusion Criteria stand up to scrutiny on the basis of other economic indicators, the presence of Single Woman headed Households is not wholly unquestionable.

## Exclusion Criteria

### Assets

The divergence in numbers thrown up by different approaches also stems from the high number of households excluded from the List. A household is excluded if it owns any of the Baseline assets namely Car, Fridge, Scooter, Land Phone, Colour TV or all of Electricity, Piped Water and Flush.

**Colour TV** as an Exclusion Criteria presents an interesting conundrum. More than one in two households own a Colour TV. The corresponding numbers are about one in three for both SC/ST houses and Landless households—a large number, by any standards. On the other hand, as Table 4 in the Appendix shows, the proportion of people owning a TV does go down significantly as one moves across classes, from advantaged to disadvantaged ones. Simply put, relatively less number of poor own a TV. However, an approach based on purely the Exclusion Criteria would result in lopsided figures, given the high number of TV owners amongst even the most backward of classes. This would surely lead to severe “exclusion errors”<sup>14</sup> i.e leaving poor households out of the List, something that Dreze and Khera are keen on limiting<sup>15</sup>.

Qualitatively, **landline phones** as an exclusion criterion poses a different kind of threat. In Hosadu, the final village I went to, I met an ex-Panchayat official, a woman of the business Bunt caste, who told me an interesting story. Apparently, the villagers got wind of the fact that there were some government officials coming to visit to allocate BPL cards to the needy. Furthermore, the word went around that houses with landline phones would not be given a card. Several villagers, with little hesitation, discarded/disconnected their landlines in order to ensure their continuing access to cheap government resources. The point here is that with mobile phones being such close substitutes and so easily available, people have lost the need

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<sup>13</sup> Dreze and Khera choose to prefer the term Social Assistance Base (SAB) List over the Below Poverty Line (BPL) List.

<sup>14</sup> The same problem would occur in other regions in the country. For example, the government of Tamil Nadu distributes free televisions to households in TN with the aim of providing TVs for all households by 2011. In such a case, using TV as an exclusion criterion would be catastrophic.

<sup>15</sup> “ ... Ultimately, both Exclusion and Inclusion errors may be important, but the focus here is squarely on Exclusion errors” The Paper, Dreze and Khera.

for landlines. Many households I visited had dysfunctional landlines—phones spoilt by years of disuse and neglect post the mobile-phone revolution; some respondents admitted they threw their landlines away, finding little economic sense in paying a monthly rent for keeping a vestigial asset. Obviously, these households had the economic resources to buy a landline phone and therefore should have been excluded from the List.

Therefore, though landline phones are easily observable criteria, their inclusion in the “baseline assets” category for excluding households are questionable on two grounds: firstly, if these exclusion criteria are known to the public—and word does get around pretty fast—then, it is in their interests to discard their phones as doing so is almost costless. Secondly, non-ownership of land phones may not always indicate that such households are worse off than those that do<sup>16</sup>.

Then again, the numbers tell a completely different story. In the current data set, except for Single Woman headed Households (whose inclusion as a disadvantaged class is, as previously mentioned, questionable), all other socially/economically deprived groups—casual workers, landless agricultural labour households, SCs and STs—have a significantly lower proportion of landline phones than their complement sets. Furthermore, unlike the case with televisions, only a fraction less than one in three (as opposed to one in two for TVs) own landlines in the sample. This number drops to one in nine if we look at all disadvantaged groups as a whole. Thus landline phones are most definitely an exclusive asset, owned by only a minority in the population. But this doesn't necessarily invalidate the issues raised in the qualitative analysis simply because the latter is based on a counterfactual scenario where the Exclusion Criteria are already in place.

### **Amenities**

While all the other baseline assets—cars, fridges and scooters are owned almost exclusively by the richer sections, the category “amenities” throws up an intriguing dilemma. The class “amenities” consists of electricity, flush and piped water. Any household owning all of the three is automatically excluded—in other words, these three assets together carry the weight of one of the baseline assets.

One could do away with the amenity “**piped water**” as an exclusion criterion on purely geographical grounds. Udupi district is amongst those regions in the country have an extended monsoon. In fact, Agumbe—barely forty-five minutes from Udupi—a small town situated atop the Western Ghats ranks consistently amongst the top five towns that receive the highest

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<sup>16</sup> In fact, if one takes the Saxena Committee's “points” system as a fair measure of ranking households, then nearly one in two of the houses sampled—forty-three percent—of those in the most well-off class don't own a land phone.



rainfall in the country. Water is plenty—rivers, streams and other such surface water sources aside, the groundwater levels are also very high<sup>17</sup>. The groundwater levels and usage are classified as “safe” and “as far as quality is concerned, the groundwater is potable and good for irrigation purpose”<sup>18</sup>. Such plentiful availability of water would make government provided piped water redundant, since most houses—even the richest—make do with a well at home. Some poor houses do utilize community piped water which usually involves a single common tap acting as a water source for a whole street. Some others use common wells. But these are largely exceptions.

The numbers corroborate the above claim: 55.16% of the houses own a well of their own. This ownership cuts across classes—both economic and social. Furthermore, there is very little in the numbers to suggest that access to piped water is definitely a privilege of the rich (See Table 6 (A)). In fact, the average “points”<sup>19</sup> of a household without access to piped water is significantly higher than the mean points for the complement set. Given that the higher the number of points, the more disadvantaged a household is, this runs counter to intuition. This *might* be due to the fact that certain water-related government schemes are in place to benefit the poorest of the poor. Insufficient data prevents us from exploring this further.

What emerges quite clearly however, is that access to piped water is not a good basis on which houses should be excluded, especially in areas such as the one sampled. Furthermore, given the interlinked nature of the criteria, courtesy this one flaw, the entire amenities class would be rendered inadequate. Nevertheless, it may be difficult to generalize such a claim—considering, in particular, the specific geographical characteristics it involves. But, it does raise the important question of whether one can employ one set of inclusion and exclusion criteria for the whole country.

### **Additional Exclusion Criteria**

Similar geographical issues crop up if one looks at ownership of a “**pucca house**” as an exclusion Criterion. Given the fact that it rains a good six months a year, one cannot cope with a kaccha roof. Even the poorest amongst the respondents—and a large proportion of these were the Scheduled Tribes who lived in distinct, though usually not isolated, clusters—live in houses with pucca roofs, though they had little else in terms of adequate clothing or food. This coupled with the presence of several government schemes namely Indira Awas Yojana, Ambedkar Yojana that not only focus exclusively on the provision of houses, but also function fairly efficiently

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<sup>17</sup> The depth to water level in most parts of Kundapur Taluk is less than 5 m bgl, with some parts even less than 2 m bgl as per the Groundwater Information Booklet, Udipi District.

<sup>18</sup> Groundwater Information Booklet, Udipi District.

<sup>19</sup> Points defined as per the Saxena Committee.

ensure near-universality of pucca houses. Any exclusion-based approach to identifying the poor that includes pucca house as a criterion would result in severe errors<sup>20</sup>.

What could therefore be a slightly better exclusion criterion is a *multi-roomed pucca house that is self-constructed*<sup>21</sup>. This, as Table 2 in the appendix shows, halves the number of poor if one uses primarily exclusion-based approaches, but maintains the hierarchy in numbers. On the other hand, approaches that give primacy to inclusion criteria more or less keep their numbers. This is an obvious result. As the numbers in Table 7 in the appendix show, any exclusion-based approach would lead to leaving out significant number of deserving households from the disadvantaged classes.

### **The Four Approaches**

The choice amongst the four approaches depends primarily on what objectives one intends to achieve. If the goal of the policy-maker is to provide a safety-net for those classes that are obviously disadvantaged (like Dreze and Khera intend to do), then it appears prudent to look at approaches who have their base in the inclusion criteria. Any approach that gives primacy to the exclusion criteria suffers from a tendency to keep out certain deserving households, since there might be several households that are both asset-owning and socio-economically disadvantaged as is indeed the case in this study (See Table 7 in the Appendix).

On the other hand, given the set of inclusion criteria, any approach that gives pre-eminence to these would imply providing some form of economic support to at least 65 % percent of the population—one that would definitely strain the resources of the government and would perhaps even bring in the thorny issue of “caps” on the number of houses per village. This is something that Dreze and Khera are (rightly) loathe to doing<sup>22</sup>. Also, if this is the case in a relatively prosperous district like Udupi, then the numbers are likely to be even higher for other areas in the country<sup>23</sup>.

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<sup>20</sup> The Dreze and Khera Paper recognizes this fact: “ In some areas, living in a pucca house is no indication of economic prosperity, e.g because stone houses are easy to build or the weather makes it hard to survive in a kaccha house”

<sup>21</sup> Using only a “Multiroom pucca house” (and not the if clause that follows) as an Exclusion Criterion is not feasible since the bulk of the government schemes in the region provide for two-roomed houses. Thus, several deserving poor are eliminated. Here again, the Paper anticipates this predicament: “... some poor households live in pucca houses as a beneficiary of the IAY, a national programme for housing subsidies. In principle, one should consider “pucca houses other than IAY building” as an exclusion criterion ... “

<sup>22</sup> Dreze and Khera also hope that their method could help do away with caps altogether. Given how high the numbers are in approaches giving primacy to inclusion criteria, that would be hard to do under them.

<sup>23</sup> In fact, the analysis in the Dreze and Khera Paper based on NFHS-3 points to nearly 80% coverage in the All-India case if one looks at the “Inclusion Approach” and 91.2% coverage if one adopts the “Play-Safe Approach”.

In light of the analysis in the preceding section, the numbers were recalculated without using TV as an exclusion criterion. This leads to a significant increase in the number of poor, especially amongst those approaches that use exclusion criteria as the primary means of separating the rich from the poor<sup>24</sup>. On greater scrutiny, what becomes apparent is the fact that a significantly smaller proportion of the visibly needy classes—such as landless agricultural labourers, SCs and STs, casual labourers—are excluded under exclusion-based criteria (See Table 7 in the Appendix). Also, the number of poor doesn't rise by too much. All the same, one in five SC/ST households and nearly the same number of landless agricultural labourers are still excluded.

### **The Saxena Committee Report and the Points System**

Fundamental to the application of Score-Based Ranking (SBR) is the definition of “caps” on the number of households that are classified as poor. Within the framework of this study, this comes up against one major hurdle: the caps on the number of houses in a Gram Panchayat or even within Blocks are arbitrarily defined with considerable freedom being given to local district officials as to what the cut off score would be beyond which households are categorized as poor. Defining these caps for the area of study by incorporating the Committee's rather vague pointers is beyond the scope of this paper. In the analysis that follows, one intends to work around this concern in numerous ways, primarily by profiling households at various intervals of the distribution of points and seeing whether asset-based or other socio-economic indicators are in line with these distributions. (See “Allocation of points” in the Appendix under Table 8 to see how points are allocated for every household)

Since asset ownership is the principal source of economic (and indirectly, social) well-being in the data set, a comparison across assets and points is amongst the simplest methods to check the utility of the points system. The results obtained are quite remarkable and is easiest to grasp from the graph in the appendix. There is a systematic downward trend in terms of asset-ownership—across all assets—as one moves from those with lower points (and therefore, less disadvantaged) to those with higher points. One must remember that explicitly asset ownership has no role to play in the formulation of the Score-Based Ranking system.

Cars are not owned by any household that has a score higher than four; fridges too show a similar pattern. As for the other assets, while there is the odd inexplicable rise in proportion of households owning assets, like for landlines between six and seven points, the trend, for the most part, is in line with what is expected. These minor rises may be because there is a drop in number of households as we get to the higher points and therefore even a handful of households in these categories owning an asset would result in a significantly high proportion

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<sup>24</sup> The numbers using the “inclusion approach” have remained unchanged. This is because this approach depends *solely* on inclusion criteria and do not get affected by changes in the exclusion criteria.

overall. Also, in some cases and especially with some assets—as previously mentioned—ownership may not always indicate unerringly the economic status of a household.

Data on amount of land owned was collected for the final three villages—a total of 249 houses. The strong negative correlation between a household's points and land owned is once again striking. As the graph in the appendix shows, there is first a slight increase in the average amount of land owned—from points 0 to 1—and then the graph slopes downward in an almost linear fashion before there is again a minor reversal in trend. Those with 0 points represent the absolute cream of the society—shop owners, goldsmiths, bank employees, hotel owners—a considerable few of whom have sold off their land and have turned to such professions full-time. This might explain the marginally lesser amount of land owned per household on the average in that category. On the whole, ownership of land too broadly reaffirms the ability of the points system to separate the better-off from the poorer sections.

As the numbers show, the scores in the latter chunks of the distribution are dominated by the clearly deprived classes—SC and STs, landless agricultural labourers and houses with illiterate adults. Of course there is an obvious case of endogeneity here—such households get points for belonging to these particular categories. But, one must still commend the Committee for recognizing this fact and ensuring sufficient points are set. A similar trend can be observed for occupational profiles of households across the distribution—the gradual transition from agriculturists, businessmen, goldsmiths, doctors and teachers at the lower end to coolies, band players, beedi cutters, basket weavers and agricultural workers as we move on is clear indication of the distinct correlation between occupational characteristics and the points system.

Perhaps the only glitch is the single point awarded to households headed by members above the age of sixty. On an average, such households tend to do better than their complement set. These households not just have a slight edge in asset-ownership, but also have lower points on an average (if one discounts the point awarded to sixty-plus households and places the two populations at a level footing).

One of the criticisms of the Saxena Committee's methodology was that the scoring method was prone to "arbitrariness both in terms of indicators chosen and scores assigned"<sup>25</sup>. A particular score, say 7, can be got through different methods through the component indicators. This may indeed be the case, but broadly from the data set, houses with similar scores are, if not homogenous, then definitely alike in their characteristics.

### **A Direct Comparison of Competing Approaches**

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<sup>25</sup> "The BPL Census and a Possible Alternative", Jean Dreze and Reetika Khera.

The above sections have, by analyzing individually the two methodologies, presented a contrast in their approaches to tackling the same problem. This section adapts a more direct method. This is done in the following manner: first, one would define arbitrary caps<sup>26</sup> on the number of households based on a cut-off score; secondly, one would compare those households that are classified as poor under the Saxena Committee’s with those under the restrictive approach. This would entail looking at intersection sets and exclusion errors from both the approaches<sup>27</sup>.

The houses included under the Restrictive Approach defined by Dreze and Khera are those that are included under all four approaches (See Appendix for a more detailed exposition). The restrictive approach, as previously mentioned, includes households that are only included (and not excluded) i.e those households that satisfy only the inclusion criteria and no exclusion criteria. These houses are, in a sense, the poorest households under the Dreze and Khera methodology. In the given sample, about 26% of the households are classified as poor under this approach.

*Cap: Points >4 versus Restrictive Approach*

Consider a stringent cap of four points. Any household that has a score *strictly* greater than four would be classified as a BPL household. The total number of such households in the current sample is 85. Now, 56 of these 85 households are classified as poor. This implies, as the table shows, two facts: 29 households that have a score in excess of 5 are excluded from the restrictive approach; furthermore, there are 66 households that are classified as poor under the Dreze and Khera approach and do not have a score beyond 5. Let us look at all these three sets: the intersection set and the exclusion error sets under both of these approaches.

	Restrictive Included	Restrictive Excluded
Points>4	56	<b>29 (Exclusion errors in RA)</b>
Points<=4	<b>66 (Exclusion errors in points)</b>	303

The bulk of those in the **intersection set** are SC/ST households (nearly 50 percent) and/or landless agricultural labour households (80 percent) also comprising some casual labourers (71 percent)—these are easily the three most backward classes in the sample. They are also, by

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<sup>26</sup> These caps are arbitrary in the sense that they are not based on any normative criteria and are to be seen as only tools for exposition and comparison.

<sup>27</sup> A word of caution is in order, before we proceed. As per the Saxena Committee’s approach, all single-woman headed households are *automatically included* in the BPL list. While the case for their being a disadvantaged class is indeed weak, the case for them being as badly off as to merit automatic inclusion is non-existent. Therefore, the analysis that follows ignores the suggestion and treats single-woman households just as it does every other household.

default, asset-poor, owning no single asset. Only 28 percent of these houses have any adult above 30 who has studied beyond class 5. More than 30 percent of these households don't have access to electricity (compared to about 10 percent overall). Clearly, these houses are amongst the poorest of those sampled.

The **exclusion error sets** are less straightforward. Under the **restrictive approach**, of the 29 excluded, 22 are excluded solely on the basis of ownership of a Colour TV— an exclusion criterion that, as previously mentioned, is questionable. Consequently, the Dreze and Khera approach comes across as a little too harsh on some kinds of households—21 of those excluded are at least doubly disadvantaged and five are landless and triply disadvantaged<sup>28</sup>.

For example, Ramesh Naik is a landless agricultural labourer belonging to the SC community. He lives with his wife and three daughters and is an illiterate. He used to live in a thatched hut until recently when he moved into a government provisioned house. He is triply disadvantaged— satisfies three of the inclusion criteria. However, he owns a TV and is therefore excluded.

On the other hand, there is a significant drop in the percentage of both landless agricultural labourers and casual workers in this excluded set (when compared to the intersection set) and the percentage of SC/ST households almost exactly halves. The average points per household, consequently, reduce from 6.5 to about 5.75. *All* these households have access to electricity. These factors indicate that perhaps indeed these houses are slightly better off than those in the intersection set. However, while these households might be relatively better off, one could argue that in absolute terms, these households are definitely deprived and should, therefore, be included.

A part of the reason for the exclusion of large number of households under the **Committee's approach** results from the strong condition we impose for inclusion. A score of 5 or above is, as previously mentioned, attained only by 18 percent of the households. Consequently, several *deserving* households could be left out.

On scrutiny, what emerges is that one in three of the households excluded are those belonging to marginal farmers, often owning plots of land smaller than an acre. Agriculture as a means of income is growing increasingly infeasible in the district. The hardest hit are the marginal farmers<sup>29</sup>. A typical case is that of Krishnoji from Ajri: he's not educated beyond class 5 (and neither is any other member in his family) and his primary means of income is a small plot of land he owns. Furthermore, he is over sixty years of age. He can't afford any assets. Along with

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<sup>28</sup> Here, we do *not*, in the light of the previous analysis, consider single woman headed households as disadvantaged households.

<sup>29</sup> "The farming in the district is fast heading for a total collapse unless rapid remedial measures are taken. Viewed from a long term perspective, the agricultural sector does not hold the promise of propelling higher growth for the district economy" (Udupi HDI report)

his wife and children, he stays in a single-room house. He is awarded two points under the Committee’s approach, something that evidently does not reflect the degree of his poverty.

Another class of households excluded under the committee’s approach are asset-poor casual labourers. In fact, they account for more than fifty percent of excluded households.

*Cap: Points >3 versus Restrictive Approach*

	Restrictive included	Restrictive Excluded
Points>3	73	<b>57 (Exclusion errors in RA)</b>
Points<=3	49 (Exclusion errors in points)	290

If the cap is relaxed slightly to three points<sup>30</sup> from four, the numbers transform considerably. The number of households that are considered poor under the Committee’s approach jumps by over fifty percent (85 to 130). Now, the number of poor households under both methodologies seem to be the around the same (between 26-28%). More so, expectedly, the exclusion errors under the Committee’s approach drops (since we impose less stringent caps) and that under the Dreze and Khera approach increases.

As seen in the table above, the single most significant jump in numbers is the exclusion errors under the Restrictive Approach (nearly doubles). A significant proportion (70%) of these additional households (that have a score of *exactly 4 and* excluded under the restrictive approach) are TV owning (and therefore excluded), but only a small fraction (25%) are excluded solely on the basis of TV ownership. In terms of asset ownership, there is little to distinguish these households from the sample as a whole. Occupation-wise, over 65 % of these households are casual labourers—a class definitely worse off than the average. Over one in three households get a single point for having a household head over sixty— this point, as has been argued, is needless as these households on an average, perform *better* than their complement sets. On the whole, while the increase in number of households excluded is significant, there is not enough in the characteristics of the households at the margin to push indisputably their case for inclusion<sup>31</sup>.

Importantly, the intersection set comprises 73 houses—about 15.5 percent of the total sampled. These are those houses that are considered extremely poor under both the methodologies. These households are, on an average, *at least* doubly disadvantaged (average binary score: 2.375<sup>32</sup>), are by design asset-less and comprise nearly seventy percent of the SC/ST households and over sixty-five percent of the landless agricultural labourers—the two

<sup>30</sup> Again, any household with points *strictly* greater than three is included in the BPL list.

<sup>31</sup> Perhaps, specifically for these houses, an additional indicator—a proxy for poverty—would have been ideal.

<sup>32</sup> See the penultimate section on the Alternative Approach for a more detailed elucidation of Binary scoring.

classes that come off the worst under whatever indicator one chooses. Only 8 such houses own agricultural land.

One could broaden criteria further, by reducing the caps to households above two points (which would result in about 46 percent of the population being classified as poor) or using any of the other three approaches specified by Dreze and Khera. However, when this analysis was carried out, it was felt that it served little purpose. Moreover, the focus here is on the *poorest* and the most deserving class and relaxing of criteria aided only in diluting the results specific to them.

The broad conclusions from the above are: one, the minimum intersection set of the two methodologies comprise about 15 percent of the total households sampled—these houses are poor whichever way one looks at them and deserve an unqualified inclusion in the BPL list; two, the Saxena Committee's approach does a commendable job at picking up doubly or triply disadvantaged households, historically marginalized communities, even illiterate households that are asset-poor—some proportion of these the Dreze and Khera approach misses out on; The Dreze and Khera approach, on the other hand, consistently picks up marginal farmers and asset-less casual labourers, both of whom don't always get adequate points as per the Committee's approach.

### **Implementation**

The issue of implementation can be divided broadly in three main components: issues of time, man-power and therefore costs; issues of transparency; and thirdly, the minor issues of verifiability of criteria.

During the course of the survey, it became amply clear that with respect to the first issue, while the Saxena Committee's approach may be an improvement over practices that are in place, the SAB approach is still quite some distance ahead. In essence, the SAB approach involves little effort. For a household to be excluded or included, it has to own one of the baseline assets or satisfy any one of the inclusion criteria. In all likelihood, this is a matter of common knowledge. While outsiders might not exactly know of all the assets a particular household may own or indeed, which amongst the inclusion criteria it may satisfy, most of them would easily be able to identify one of each from a list of many. In fact, usually, the questions that stalled outsiders or those that they often got wrong (and sometimes even respondents), were: amount of agricultural land owned, whether there were any people with specific illnesses in the house, whether the household head was over sixty, whether there was any adult above thirty in the house who was educated beyond class five. The common thread that binds all these questions are that they were all from the Committee's Questionnaire.



As a surveyor too, I found that the time taken for completion of the Dreze and Khera Questionnaire was much lower. On quite a few occasions, the inclusion and exclusion criteria were so evident that I needn't really have asked the questions. For example, in Ajri, I surveyed a household in the ST hamlet. STs are automatically included as per the Dreze and Khera Paper, so that took care of all the inclusion-related questions. I was then ushered into a living room that had a TV. If I was only interested in identifying households based on the SAB approach, I might as well have thanked the household head and walked out.

With regards to transparency too, the Saxena Committee's approach is a little suspect. While the scoring system is efficient in as much as one looks at a ranking of households, it still divides the community into eleven groups. The points system awards different weights for different characteristics. I found it rather difficult to explain to even well-read villagers the intricacies of the points system. The straightforward nature of the SAB approach, on the other hand, proved much easier.

For Hosadu, the final village I evaluated, I managed to arrange for someone else to carry out the study, so that I could observe the process from a third-person's perspective. Even though his manner wasn't quite suited for such rigorous work and he slacked off every time no one was looking, the Dreze and Khera half of his filled questionnaires was always more reliable than the latter half. However, he termed the actual process of asking questions "easy" and that there was no significant difference in difficulty of questions between the two approaches.

As for verifiability of criteria, as previously mentioned, some questions from the Saxena committee's questionnaire were not always common knowledge and therefore, one had to resort to taking the respondents answers at face value. Sometimes, however, certain wings of the government machinery—the Panchayat office, health workers from the NFHS—had access to specialized knowledge that proved helpful. On the whole, the scale of such errors does not seem to be so large as to warrant too much worry<sup>33</sup>.

### **Alternative Approach**

This approach is basically an extension of an intermediary approach that the Dreze and Khera paper proposes. Recognizing that their method might be "too rigid, in so far as it does not allow for weighing and aggregation of different criteria, as in the scoring method", Dreze and Khera propose an alternative binary scoring method. The essence of this method involves giving a weight of one for each of the inclusion criteria: therefore, if a household satisfies *only* one of the inclusion criteria—say, it is an SC household—then it is assigned a score of 1. If a household is doubly disadvantaged—say, it is an SC household *and* owns no agricultural land—then, it is

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<sup>33</sup> Note that all those unverifiable questions carried just one point each.

assigned a score of two and so on. If there are four inclusion criteria, then the maximum score a household can achieve is four.

The alternative proposed here involves a combination of this binary scoring with previously discussed exclusion criteria. As seen before, a considerable number of households in the sample satisfy at least one inclusion criteria and one exclusion criteria—in other words, they are socially and/or economically disadvantaged and asset-owning. This is a direct consequence of the fact nearly three in five households are automatically included. Accordingly, this results in disproportionately large number of households in the SAB list in the approaches that give primacy to inclusion criteria and, therefore, significant divergence in numbers within approaches.

The alternative advocated is two-pronged: one, it provisions inclusion contingent on a binary score of at least two—or, in other words, directly includes only those households that are at least doubly disadvantaged; two, of the rest of the households, excludes all those houses who satisfy at least one of the exclusion criteria. Theoretically, by incorporating some form of aggregation, this proves advantageous on the grounds that it is flexible, that inclusion is not determined solely by a single characteristic. This, however, narrows down the inclusion criteria. Nevertheless, by letting asset-ownership decide the fate of the rest of the population, households that are singly disadvantaged (as opposed to doubly disadvantaged) and asset-poor are included.

As regards to implementation too, this method scores over that of the Saxena Committee's by doing away with many a question, leaving only those few that are easily verifiable, thereby making data gathering much less expensive. Furthermore, given the almost child-like simplicity of the scoring system, one would presume evaluation would become that much simpler and courtesy the transparency, manipulation that much harder.

The numbers, in the current data-set, tell a story<sup>34</sup> (See Tables 1, 2 and 3 in the last section of the Appendix): firstly, the number of households that satisfy the new inclusion criteria more than halves; secondly, the number of households that are both included and excluded reduces to 48—about one in ten—from 174—one in two-and-a-half. This points to the strong correlation between being included and being asset-poor; thirdly, the percentage of households being included in the SAB list is about 45%—a figure that is more in line with the predicted poverty levels for the area under study<sup>35</sup>. Of the households excluded, none of them

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<sup>34</sup> These numbers are calculated without using “Single-Woman Headed Households” as an inclusion criterion. The reason for doing so is discussed earlier in the Paper.

<sup>35</sup> The Tendulkar Committee puts Karnataka's rural poverty at 37.5%; The Udupi HDI report calculates the same for Udupi district at 24%. A separate calculation for Kundapura Taluk as a whole—not just the rural areas—is a shade under 30%.

are landless agricultural labourers, three are those of either SCs or STs and over 90% of the households have at least one adult educated beyond class 5. These numbers reveal clearly that errors of exclusion, if any, are few.

The above approach is narrower in its inclusion criteria, but, given the parallels with the Play-Safe Approach, counterbalances that by giving primacy to inclusion criteria. Of those not included, the approach takes pains to rope in all those households that are disadvantaged in terms of assets owned. A theoretical case for such an approach, as shown above, can be made. Furthermore, the numbers in the current data set stack up pretty well.

### **Conclusion**

A broad analysis of the competing approaches indicates that neither is close to being perfect, some flaws being inherent in each.

While the SAB approach has the definite edge in implementation, its ability to capture the poor in a manner that is adequate doesn't come through. The simplicity of the SAB approach is at the same time, its greatest strength and weakness—excluding or including households on the basis of, in some cases, a single characteristic would require such attributes to be very closely linked with poverty. While some exclusion criteria—like cars or fridges—are almost exclusively owned by the rich and therefore share a tight link with poverty, these are also quite narrow, excluding only few who are well above the poverty line. As shown from the study, any attempt to broaden the criteria—by the addition of, say, TVs to the list— would result in considerable dilution of this link and exclusion errors.

Also, given the diverse nature of this country, each region has its own specific characteristics and socio-economic conditions. In such a scenario, it is indeed questionable whether there can ever be one set of exclusion and inclusion criteria that is feasible throughout the country. The current analysis shows that a considerable few of the inclusion and exclusion criteria are either redundant or inappropriate for the area of study.

The Committee's SBR approach is more comprehensive in that it looks at a whole list of attributes of a household before deciding where it stands in the society. This wholesome approach is safer and, based on the current study, ranks the underprivileged in a manner that is somewhat adequate. However, this approach suffers from two major hurdles: one is the issue of caps on the number of households that are classified as poor, a problem that has been handed down over generations of approaches; and secondly, the implementation-related problems.

The Alternative Approach is both transparent and flexible. It seems like a possible alternative—especially given how well the numbers in the current sample stack up— but more field-work needs to be done before any concrete claim can be made.

## APPENDIX

### 1. Village Summaries

<b>Village Name</b>	<b>Number Sampled</b>	<b>Number Of wards</b>
<b><u>SN</u></b>	<u>119</u>	<u>6</u>
<b><u>U-74</u></b>	<u>101</u>	<u>3</u>
<b><u>Belve</u></b>	<u>86</u>	<u>2</u>
<b><u>Ajri</u></b>	<u>100</u>	<u>3</u>
<b><u>Hosadu</u></b>	<u>63</u> <sup>36</sup>	<u>1</u>
<b><u>Overall</u></b>	<u>469</u>	

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<sup>36</sup> This village had only 63 houses sampled as it is a fairly small village. It has just one ward and is not so much a village as a cluster of houses on the National Highway. Furthermore, some sample sheets were discarded due to incomplete data.

## Summary Statistics on the Dreze and Khera Methodology

### 2. Broad Numbers

Type	Exclusion Approach	%	Inclusion Approach	%	Play-Safe Approach	%	Restrictive Approach	%
Exclusion Criteria (1)	165	35.18	302	64.39	343	73.13	125	26.65
Exclusion Criteria(2)	39	15.6	152	61.04	157	63.05	34	13.65
TV-less Analysis(1)	212	45.20	302	64.39	367	78.25	182	38.81
TV-less Analysis(2)	54	21.69	152	61.04	161	64.66	45	18.07

**The Exclusion Approach:** Reject a Household from the List *if and only if* it satisfies any of the Exclusion Criteria. Mathematically: Total Households- All Excluded Households

**The Inclusion Approach:** Include a Household *if and only if* it satisfies any of the Inclusion Criteria. Mathematically: All Included Households

**The Play-Safe Approach:** Reject a Household *only if* it satisfies any of the Exclusion Criteria and does not satisfy any of the Inclusion criteria. Mathematically: Total-Households Only Excluded (and not included).

**The Restrictive Approach:** Include a household *only if* it satisfies any of the Inclusion Criteria and does not satisfy any of the Exclusion Criteria. Mathematically: Households only Included (and not excluded).

**Exclusion Criteria 1:** Exclude a Household if it owns any of the baseline assets.

**Exclusion Criteria 2:** Exclude on the basis of ownership of any of the Baseline assets or a Multiroom Pucca house that is *self constructed*. The second criterion is mentioned in the paper, although in a round-about manner. Also, data on the latter was collected only for the last three villages since initially I was looking at “Pucca house” as an exclusion criterion. In the

monsoons—which is about 6 months a year—it is impossible to survive in a house with a kaccha roof. So, post the mid-way analysis, a modified questionnaire was used for the last three villages.

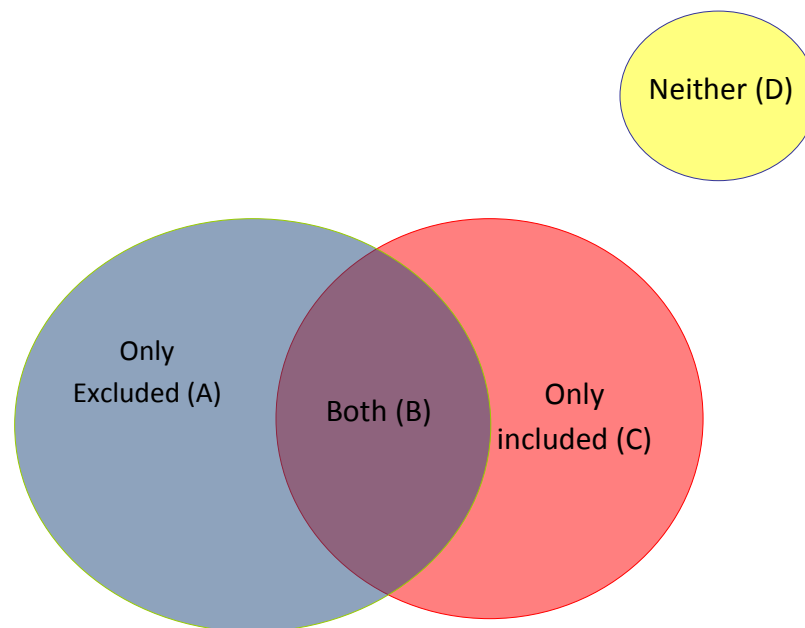
**TV less Analysis (1 and 2):** The numbers are recalculated here after doing away with Television as an exclusion criteria.

### Venn Diagram

From the above definitions, one can derive set-based expressions for all the four approaches which can be easily grasped through the Venn Diagram Below.

Restrictive Approach: **C**; Exclusion Approach: **C+D**; Inclusion Approach: **B+C**; Play Safe Approach: **B+C+D**.

The **Intersection Set** of all the four approaches is set **C**—the houses under the Restrictive approach.



### 3. Absolute Number of Households

Criteria	Only Excluded	Both	Only Included	Neither	Total
Exclusion criteria 1	130	174	122	43	469
Exclusion Criteria 2	92	118	34	5	249
Exclusion criteria 1 without TV	102	120	182	65	469
Exclusion Criteria 2 without TV	88	107	45	9	249

The table counts the number of households excluded and/or included if one experiments with different exclusion criteria. The inclusion criteria remain the same throughout.

The numbers show a considerable number of households that are *both* included and excluded, indicating a large number of households that are socially and/or economically disadvantaged *and* asset-owning.

#### **4.Asset Profile of specific types of Households**

<b>Type</b>	<b>Fridge</b>	<b> Scooter</b>	<b>Land- Phone</b>	<b>Colour TV</b>	<b>Electricity</b>	<b>Total</b>
<b>Casual Labourer</b>	4 (2.41%)	20 (12.05%)	33 (19.88%)	64 (38.55%)	138 (83.13%)	167
<b>Landless Agricultural Labourers</b>	0 (0%)	4 (4.25%)	14 (3.19%)	33 (35.11%)	73 (77.66%)	94
<b>Artisan/Craftsmen</b>	0 (0%)	2 (15.38%)	1 (5.26%)	5 (38.46%)	11 (84.62%)	13
<b>SC/ST</b>	0 (0%)	4 (10.26%)	4 (10.26%)	12 (30.77%)	29 (74.36%)	39
<b>Overall</b>	60 (12.79%)	124 (26.44%)	169 (36.03%)	265 (56.50%)	404 (86.14%)	469

The Colour TV is easily the most owned asset.

While on one end of the spectrum we have fridges that are owned by barely one in eight households and one in forty casual labour households, on the other end we have more than one in two and about one in three SC/ST households owning TVs.



## 5. Analysis of Test of Proportions

	Car	Fridge	lpho0e	Scooter	colourtv
<b>Single woman Headed Hh</b>	z = 0.5795, Pr(Z > z) = <b>0.2811</b>	z = 1.4521, Pr(Z > z) = <b>0.0732</b>	z = 1.4933, Pr(Z > z) = <b>0.0677</b>	z = 2.6278, Pr(Z > z) = 0.0043	z = 0.8967, Pr(Z > z) = <b>0.1850</b>
<b>Uneducated Adults</b>	z = 2.2174, Pr(Z > z) = <b>0.0133</b>	z = 3.2257, Pr(Z > z) = 0.0006	z = 3.5850, Pr(Z > z) = 0.0002	z = 4.0698, Pr(Z > z) = 0.0000	z = 4.6148, Pr(Z > z) = 0.0000
<b>Landless Persons</b>	z = 0.3507, Pr(Z > z) = <b>0.3629</b>	z = 0.5922, Pr(Z > z) = <b>0.2769</b>	z = 3.3291, Pr(Z > z) = 0.0004	z = 3.3911, Pr(Z > z) = 0.0003	z = 2.2969, Pr(Z > z) = 0.0108
<b>Landless Agricultural Labourers</b>	z = 2.3906, Pr(Z > z) = 0.0084	z = 3.5556, Pr(Z > z) = 0.0002	z = 4.1827, Pr(Z > z) = 0.0000	z = 5.5860, Pr(Z > z) = 0.0000	z = 4.4137, Pr(Z > z) = 0.0000
<b>Casual Labourers</b>	z = 4.1384, Pr(Z > z) = 0.0000	z = 5.0365, Pr(Z > z) = 0.0000	z = 5.5119, Pr(Z > z) = 0.0000	z = 5.3219, Pr(Z > z) = 0.0000	z = 5.9952, Pr(Z > z) = 0.0000
<b>Artisan/Fisherf olk/Selfemploy ed</b>	z = 1.0235, Pr(Z > z) = <b>0.1530</b>	z = 1.4040, Pr(Z > z) = <b>0.0802</b>	z = 2.1685, Pr(Z > z) = <b>0.0151</b>	z = 0.9248, Pr(Z > z) = <b>0.1775</b>	z = 1.3495, Pr(Z > z) = <b>0.0886</b>
<b>SC/ST</b>	z = 1.8257, Pr(Z > z) = <b>0.0340</b>	z = 2.5047, Pr(Z > z) = 0.0061	z = 3.5202, Pr(Z > z) = 0.0002	z = 2.4072, Pr(Z > z) = 0.0080	z = 3.4203, Pr(Z > z) = 0.0003
<b>Backward Classes</b>	z = 1.4398 Pr(Z > z) = <b>0.0750</b>	z = 2.8056 Pr(Z > z) = 0.0025	z = 1.6042 Pr(Z > z) = <b>0.0543</b>	z = 2.5383 Pr(Z > z) = 0.0056	z = 0.6483 Pr(Z > z) = <b>0.2584</b>

Null Hypothesis:  $H_0: P_1=P_2$ ,  
 $H_1: P_1>P_2$ .

The numbers in red indicate insignificant difference between proportion of specific households owning the particular asset and their complement set at the 5 percent level of significance. The numbers in blue indicate those that are insignificant at the 1 percent level of significance.

In the test of proportions, we test for whether the advantageous groups own a higher proportion ( $P_1$ ) of assets than those that are disadvantaged ( $P_2$ ).

The results quite directly point to the insignificant difference in proportions for all assets except scooters for the category “Single-woman headed households” at the 5 % level of significance for the given sample. As for Artisan and Craftsmen, the total number of such households—fourteen—makes comparison between such households and their complements unreliable. The same can be said for cars.

## 6. Amenities

### a) Piped Water

	Households with	Households without
Landless Agricultural Labourers	21.6216%	5.27027%
SCs and STs	17.56757%	6.58228%
Car	6.75676%	7.36041%
Fridge	10.81081%	13.23155%
Land Phone	29.72973%	37.40458%
Scooter	22.97297	27.22646
Colour TV	52.7027	57.50636

The table is a comparison between those households who have access to piped water and those households who do not. As can be seen, 21 percent of those houses with piped water are landless agricultural labour households and 17 % are SCs or STs. This is much higher what it is for those households without access to piped water.

Furthermore, those who have access to piped water have a lower proportion of assets than those who do not. Clearly piped water is not necessarily an asset owned exclusively by the better-off.

## 7. Percentage of Disadvantaged Excluded under various approaches

	SCs and STs	Landless Agricultural Labourers	Illiterate Adults	Backward Classes	Casual

<b>Exclusion Criteria 2</b>	46.15%	58.82%	62.5%	69.05%	64.07
<b>Exclusion Criteria 1</b>	33.33%	37.65%	0.5%	63.10%	46.71
<b>Exclusion Criteria 1 without TV</b>	20.51%	18.82%	32.07%	38.09%	28.14

Under Exclusion Criteria 2, a large number of disadvantaged classes are excluded. While this reduces considerably if one adopts Exclusion Criteria 1—which simply drops the criterion “Multiroom Pucca household which is *self constructed*” for exclusion—one in three SC or ST households and a similar number of landless households are still excluded. If one drops Television as an exclusion criterion from the above, then that number falls further to one in five SC or ST households and one in three for illiterate adults.

### Analysis on the Saxena Committee’s Approach

#### 8. Points

Variable	Obs	Mean	Std. Dev.	Min	Max
Points	469	2.722814	2.359725	0	11

Points	Proportions	Standard Error	Confidence Interval	
0	0.187633	0.018047	0.15217	0.223097
1	0.217484	0.019069	0.180012	0.254956
2	0.132196	0.015657	0.10143	0.162962
3	0.134328	0.015763	0.103353	0.165303
4	0.104478	0.014139	0.076693	0.132262
5	0.072495	0.011986	0.048941	0.096049
6	0.06823	0.011655	0.045327	0.091133
7	0.040512	0.009114	0.022603	0.05842
8	0.029851	0.007866	0.014393	0.045309
9	0.008529	0.004251	0.000176	0.016882
10	0.002132	0.002132	-0.00206	0.006322
11	0.002132	0.002132	-0.00206	0.006322

The average points of a household is about 2.72. The **median** is 2.

The second table displays the proportion of households having points= 0, 1 ... 11. A 95% confidence interval for these proportions is also given.

#### **Allocation of Points**

- SC/ST: 3 points; Denotified Tribes and Designated Most Backward Classes: 2 points; Muslim/OBC: 1 Point
- Landless Agricultural Labourers: 4 points; Agricultural Labourers (with some land): 3 points; Casual Workers: 2 points; Self Employed Artisans or self-employed fisher-fold (including those employed by those in such professions): 2 points.
- No adult (above 30 years of age) has studied beyond class 5: 1 point.
- Any member of the household has TB, Leprosy, disability, mental illness or HIV AIDS: 1 point.
- Households headed by an old person of age 60 and above: 1 point

### **Binary Variables**

<b>Variable</b>	<b>Total</b>	<b>Std. Err.</b>	<b>[95% Conf.</b>	<b>Interval]</b>
<b>Single Woman Headed Households</b>	86	8.387306	69.51847	102.4815
<b>Houses owning Agricultural Land</b>	250	10.80289	228.7717	271.2283
<b>Landless Agricultural Labourer Households</b>	93	8.64169	76.01859	109.9814
<b>Casual Labour Households</b>	166	10.36094	145.6402	186.3598
<b>Artisan/Fisherman Households</b>	13	3.558926	6.006509	19.99349
<b>Households having an educated adult who is over 30 years</b>	285	10.56792	264.2334	305.7666
<b>Households with any member having illness</b>	33	5.544255	22.10523	43.89477
<b>Households headed by person who is over 60 years</b>	167	10.38099	146.6009	187.3991

### **Profile of Illnesses**

<b>Type</b>	<b><u>Number</u></b>
<b>Disability</b>	10

<b>Dumbness</b>	2
<b>Mental Illness</b>	13
<b>TB</b>	4
<b>Unknown</b>	4

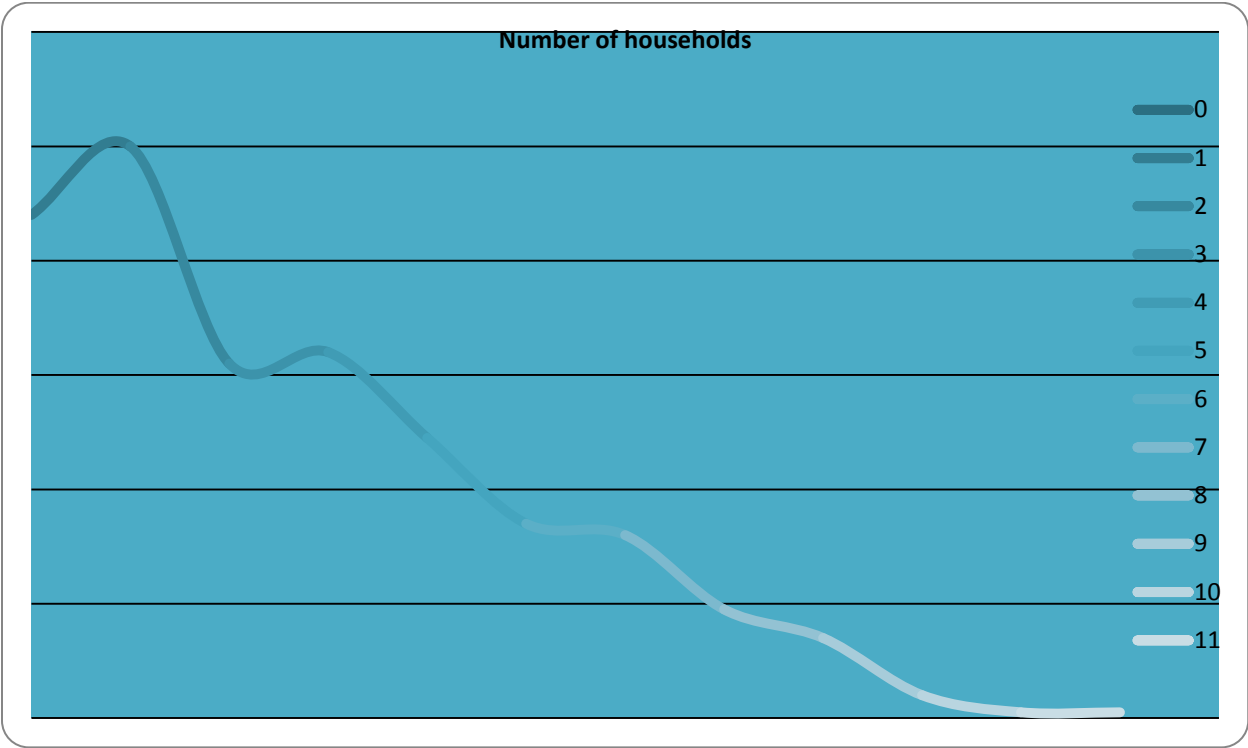
The tables above are straightforward: the first adds up the number of various types of households across the sample; the title in the second is self-explanatory.

#### **Average Points of Various Households**

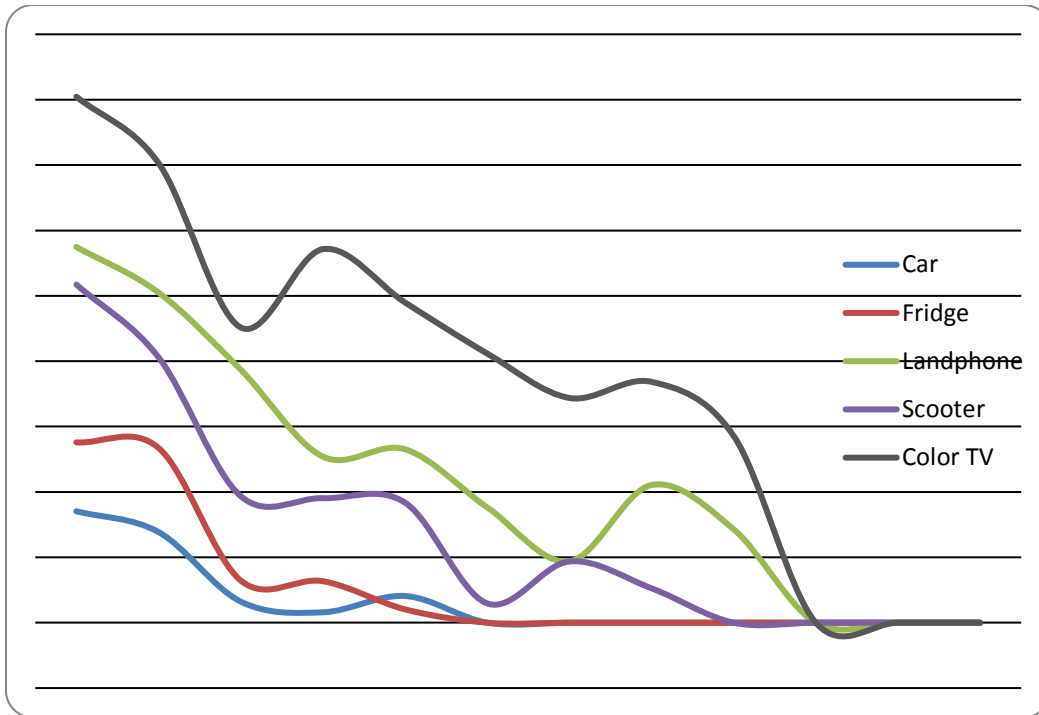
	Mean Points	Standard Deviation	Min	Max
Uneducated Adults	4.184783	2.251554	1	11
Landless Agricultural Labour Households	6.164706	1.624566	4	11
Single Woman headed Households	3.104651	2.341589	0	8
SCs and STs	6.846154	1.967345	3	11
Casual Labourers	4.401198	1.787035	2	9
Backward Classes	4.464286	1.696534	2	8

The average points of all the above “deprived” categories are, in most cases, considerably above the mean. This is a consequence of two factors: one, most of these houses get some points for being underprivileged; two, being obviously backward, many of these houses acquire additional points for other disadvantaged household characteristics.

**Graph 1.**

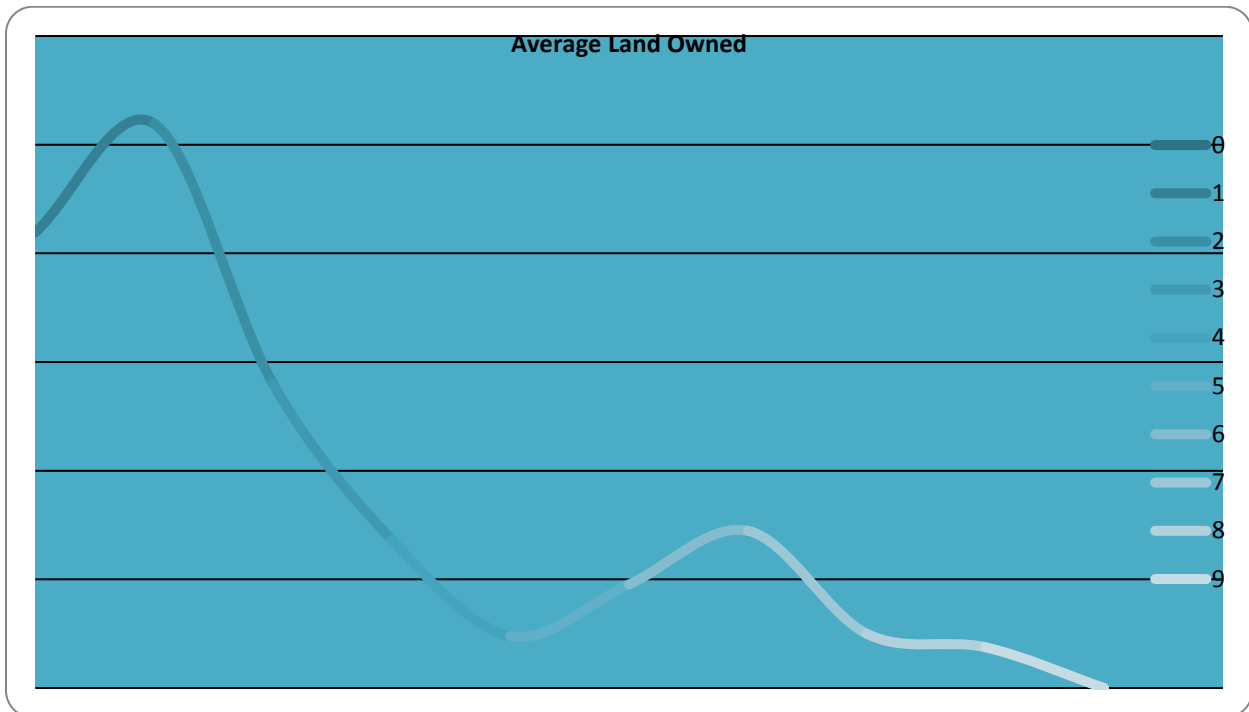


**Graph 2.**



Y Axis: Proportion of households owning the asset; X Axis: Points.

**Graph 3.**



Y Axis: Average number of acres of land; X Axis: Points of households

**Graph 1** is a simple pictorial representation with number of households on the Y axis and points on the X Axis.

**Graph 2** pits assets against points. As can be seen, for every asset, as the number of points increases—i.e as the household becomes more disadvantaged—the proportion of households owning the asset falls. The minor rises in the latter halves of some curves is a consequence of the falling number of households as points rise. A few stray houses owning an asset can translate into a high proportion when the total number of households is small.

**Graph 3** looks at land-ownership and points. Again, the downward trend provides considerable backing to the theory that as points rise houses become more disadvantaged. The rise between four and six points could be attributed to the small number of households. Whereas, the initial rise is explained in the paper.

## Alternative Approach

### 1. Number of Households with Binary Score<sup>37</sup>

Score	1 <sup>+</sup>	2 <sup>+</sup>	3 <sup>+</sup>	4 <sup>+</sup>
Number of Households	265	128	48	7
Percentage	56.5032	27.29211	10.23454	1.492537

The table above points to how sharply the numbers drop as one moves from looking at households that are disadvantaged to those that are at least doubly disadvantaged. The number of households included directly more than halves.

### 2. Number of Households

	Only Excluded	Both	Only Included	Neither
Number of Households	256	48	73	92

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<sup>37</sup> Note: Houses headed by widows are not awarded any points. This is in light of the earlier analysis in this paper.



Percentage	54.58422	10.23454	15.56503	19.6162
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A direct consequence of including only doubly disadvantaged households is that the number of houses that are both included and excluded falls sharply—only 10% of the households belong to this category. Consequently, the number of households excluded rises.

**3. Percentage of Poor Households under the Four Approaches**

Exclusion Approach	Percentage	Inclusion Approach	Percentage	Play Safe Approach	Percentage	Restrictive Approach	Percentage
165	35.181	121	25.799	<b>213</b>	<b>45.416</b>	73	15.565

While the numbers above are tabulated for all four approaches, what is recommended is only the Play-Safe Approach. Given the fact that inclusion is contingent only on being doubly disadvantaged, it is imperative that primacy is given to inclusion criteria. Amongst the two that do, the Play-Safe Approach is preferred since it gives the large number of excluded households (especially those that are singly disadvantaged) a shot at being included in the final list if their poverty translates into a lack of assets.