



# **The Nexus between Disability and Poverty: Analysis Based on States Data in India**

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Paper prepared for the 34<sup>th</sup> IARIW General Conference

Dresden, Germany, August 21-27, 2016

PS2.2: Non-Market Services and Transfers

Time: Thursday, August 25, 2016 [Late Afternoon]

25/07/2016

# The Nexus between Disability and Poverty: Analysis Based on States Data in India

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## Abstract

*The literature on poverty analysis in India has often directed its focus on examining the poverty spreads across social, religious and economic groups or among the women and children. However, the interdependent relationship between disability and poverty continues to remain a neglected area of research, despite the fact that the poorest and most marginalized group in the country is often represented by disabled persons. Research findings across the world have pointed out that disability remains an extremely important risk for falling under poverty among the working-age population. This paper compares the state level estimates of poverty that are prepared by the government department with the recently released census data on disability prevalence to explore on the potential link between poverty and disability. We observe a direct relationship between the poverty rate and disability prevalence for both rural and urban areas across Indian states. The persons with disability are also found to experience lower educational attainments and work opportunities in India. Our results convey as to why it is essential to break the nexus between disability and poverty in pursuing the inclusive development goals. (183 words)*

Key words: Disability, Analysis of Education, Labor Discrimination, Measurement and Analysis of Poverty, Work, India.

JEL Classifications: I 19, I 21, J71, I 32, O53.

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# The Nexus between Disability and Poverty: Analysis Based on States Data in India

## 1. Introduction:

There exists a vast literature on the poverty analysis in India, where a part of the analysis was involved with the measurement issues, while others focused on the analysis and implication the large-scale income inequality and impoverishments for the country's inclusive growth objectives. It may further be noted that some of the papers in the literature provided attention towards analyzing the poverty magnitude among minorities or social and religious groups. Thus, there exists discussion on the poverty incidence among female-headed households, backward class of population, viz., scheduled class, scheduled tribes, other backward classes or religious minorities, viz., Muslims, Christians, Sikhs, Buddhists and Zoroastrians (Parsis). However, there remains a gap on the poverty analysis for the disabled class of population in India. Since a disabled person is less likely to have access to earning, employment opportunities, education and training and rehabilitation, disability can cause and intensify poverty on the individual and his family. On the other hand, poverty can also cause disability through lack of access to health care and preventive services that further reinforce the likelihood that a person lives and works in an adverse environment. It therefore seems apparent that disability and poverty could work in a two-way relationship, viz., disability adds to the risk of poverty and conditions of poverty increase the risk of disability.

It is often argued that the incidence of poverty in India remains a matter of key concern because the vulnerability of the poor population seems to have deepened over the years. It can be perceived that persons with disabilities in India are most likely to be poor and that poverty remains as the contributing factor behind disabilities of several kinds. Therefore, one can hypothesize that the links between disability and poverty in India is complex and often overlapping. In this background, this paper addresses the relationship between poverty and disability in the context of states of India. This paper explores on the inter-relationships through an examination of poverty in terms of income and the prevalence of disability across Indian states. We recognize that the link between disability and poverty can be more prominent on a

broader scale of poverty that covers the other dimensions, viz., the multi-dimensional framework of poverty that covers the non-economic dimensions such as education, health and nutrition, employment and social support.

The plan for the rest of the paper is as follows. The next section summarizes the main findings of the poverty research in India, which is relevant to our work. Section 3 provides a general account of the of the disability prevalence in India. Since the connecting link between disability and poverty happens to be literacy and work opportunities, we also focus on this aspect by examining the literacy and employment gap for different types of disability in India. Section 4 provides the some explanations for the relationship as well as the findings from both the developed and developing countries including India. The results on the relationship between disability and poverty on the basis of comparing the poverty estimates and the census information on disability are provided in section 5. Section 6 concludes by summarizing the results.

## 2. Poverty in India:

The incidence of poverty in India has remained a matter of key concern because of its magnitude. The national poverty ratio estimated by the Planning Commission using Tendulkar methodology from the National Sample Survey's data on household consumer expenditure indicated a poverty incidence of 25.7% in rural areas, 13.7% in urban areas and 21.9% for the country as a whole in 2011-12 (GOI 2013). Subsequently, the Expert Group estimated that 30.9% of the rural population, 26.4% of the urban population and 29.5% of the total population remain below the poverty line in 2011-12 (GOI 2014). A comparison of the poverty ratio for the two years 2009-10 and 2011-12 derived from the Expert Group and Tendulkar method shows that the all-India poverty ratio derived from the Expert Group method remains 8.4 percentage points higher in 2009-10 and 7.6 percentage points higher in 2011-12 than that derived by the Planning Commission using Tendulkar method. It may be noted that the extent of reduction in poverty ratio from Rangarajan method is not very different than that of Tendulkar method. The analysis of state-level poverty rates has also indicated that while some states registered impressive reductions in poverty, other states continued to remain persistently poor in India. Thus, the states of Bihar, Jharkhand, Chhattisgarh, Odisha, Madhya Pradesh, Uttar Pradesh and West Bengal account for about 45% of India's population and comprised a concentration of more

than 58% of India's poor (ADB 2011). It is commonly held that the factors responsible for the persisting poverty problem in India are the unequal land distribution, low agricultural productivity, deprivation based on social class, poor education, etc. It is also argued that the economic reforms of 1991, despite advancing the economic growth rates, have given rise to more income inequalities.

Although, there was a decline in the poverty ratio during in recent years, India's human development index - measured on the basis of health, education, and standard of living remained low and lagged behind other emerging economies. An analysis of poverty from a multi-dimensional perspective shows that reduction in the national poverty between 1999 and 2006 was more driven by the standard of living indicators, viz., electricity, housing condition, drinking water and sanitation facilities rather than the social indicators (Alkire and Seth 2013). It is also argued that the reduction in multidimensional poverty has not been uniform across different states or population subgroups. The eight Indian states, viz., Bihar, Jharkhand, Madhya Pradesh, Uttar Pradesh, Chattisgarh, Odisha, Rajasthan and West Bengal were found to be the home to a maximum number of poor populations in India. According to the global Multidimensional Poverty Index (MPI), Kerala, Tamil Nadu, Himachal Pradesh, Punjab, Mizoram, Goa and Delhi remained as the least poor Indian states in 2015.

The skewed nature of the distribution of poor people across states is considered as an important feature of the incidence of poverty in India. The feature of few states accounting for a large majority of the poor is evident even from the estimates pertaining to the recent years. The percentage of population below the poverty line as per the Tendulkar methodology for the Indian states is reported for the year 2011–12 in Figure 1. One can observe that there are 6 bigger states and 3 small states from the north-eastern region that recorded poverty ratios above the national average. The 6 bigger states are Chhattisgarh, Jharkhand, Bihar, Odisha, Madhya Pradesh and Uttar Pradesh, whereas the 3 small states are Manipur, Arunachal Pradesh and Assam. It can also be seen that about 35% of the total poor in India resided in just two states, Uttar Pradesh and Bihar; and only 6 states (viz., Uttar Pradesh, Bihar, Madhya Pradesh, Maharashtra, West Bengal and Odisha) accounted for 63% of the poor in 2011-12.

### 3. Disability Prevalence in India:

The Census 2011 provides the most recent data on disability that was collected during the population enumeration phase through the ‘Household Schedule’. We use the same data to represent a picture of the disability prevalence and its nature in India. The percentage of total disabled persons in aggregate (rural plus urban) population remained at about 2.22%. The rural disabled persons constituted about 2.23% in the rural population, while the urban disabled persons made up about 2.16% of the urban population according to the 2011 Census data. To focus on whether the prevalence rate is disproportionate to the size of population in a particular state, we work out the state’s shares in all-India total population vis-à-vis the state’s shares in all-India disabled population in Figure 1. It can be noticed that the state’s shares of disabled population in all-India exceeded that of total population of all-India in Jharkhand, Punjab, Rajasthan, Chhattisgarh, Jammu and Kashmir, Odisha, Andhra Pradesh and Maharashtra. On the other hand, the state’s shares in all-India disabled population remained lower than the state’s share in all-India total population in Tamil Nadu, Uttar Pradesh, Gujarat, Assam, Delhi, Madhya Pradesh, Uttarakhand and Karnataka.

*(Insert Figure 1)*

In Figure 2, we provide information on the literacy aspect for each of the different types of disability by working out the proportion of literacy and illiteracy in India. The proportion of literacy is found to exceed that of illiteracy in all physical disability types, viz., disabilities in seeing, hearing, speech and movement, as well as in the total disability. On the other hand, the proportion of illiteracy remained higher in the case of mental disability, mental illness and multiple disabilities.

*(Insert Figure 2)*

In figure 3, we examine the extent of employment barriers among disabled persons by analyzing the worker-population ratio across types of disabilities in India. It is found that about 60% or more of disabled persons are non-workers and about 25% are main workers, while the remaining 15% remain as marginal workers in all the groups of disabled persons, excepting for the groups of mental retardation and mental illness. There are about 75% of non-workers, 15% of main workers and 5% marginal workers in the groups of mental retardation and mental illness in India.

*(Insert Figure 3)*

The worker-population ratio for the total disabled persons is also worked out for different states to get an idea of the regional variation (Figure 4). It can be seen that the proportion of non-workers varied between 60-70% in different states. The states with better performances of work opportunity for the disabled are Nagaland, Maharashtra, Arunachal Pradesh and Sikkim, where about 1/3 of the disabled population are main workers. On the other hand, the proportion of main workers comprised about 1/5 of the disabled population in the states of Kerala, Jammu & Kashmir, Jharkhand and Odisha. On the other hand, there are states which depicted a high proportion of disabled persons as non-workers, e.g., about 70% of the disabled persons remained as non-workers in the states of Kerala, Delhi, Goa, Haryana and Chandigarh. It can be discerned that Sikkim and Nagaland remained as the only better performing states, where the share of non-workers remained about 50% among disabled persons.

*(Insert Figure 4)*

We subsequently focus our attention on the composition of disabled non-workers in India by occupation and by types (Figure 5). Thus, while about 40% of the physically disabled persons are dependent, there is about 60-65% of disabled persons in the mental disability or multiple disability categories that remain dependent in India. There are about 27% of the total disabled persons that are found to be students. While the proportion of students remains the same as in the total disabled category, it is found to be much lower in the mental or multiple disability categories, which remain in the range of 15-20%. Finally, about 5% of disabled non-workers remain as beggars across all types of disabilities in India.

*(Insert Figure 5)*

#### 4. Links and Evidence of Disability-Poverty Interrelationships:

The issue of poverty remains a noteworthy feature for persons with disabilities, whereby it is maintained that disability is both a cause and consequence of poverty. The idea that disability is both a cause and consequence of poverty was put forward in the literature that investigated the economic wellbeing of families with disable members, viz., Elwan [1999], Gordon, et al [2000], DFID [2000], Zimmer [2008], Braithwaite and Mont [2008], Filmer [2008], Parnes [2009], Fremstad [2009], Groce et al [2011], Mitra, Posarac and Vick [2011], etc. Disability is considered a cause because such persons have lower education and work opportunities than the

rest of the population and are therefore more likely to remain below the poverty line. The occurrence of disability can additionally result in barriers to skills development, reduced earning or job loss, which in turn may cause economic deprivation. Further, disability can lead to poverty in the sense that those with impairments require extra cost of living due to their specific needs. On the other hand, disability is also a consequence because income poverty can limit the access to health care and services and add to the chances that one lives and works in an environment that may negatively impact health. It is therefore argued that disabled persons are among the most disadvantaged people in the world and are over-represented among the poorest of the poor (Yeo 2005).

Among the studies that specifically explored on the relationship between disability and poverty are Lustig and Strauser [2007], Brault [2008], Braithwaite and Mont [2009], Engelbrecht and Lorenzo [2010], Filmer [2008], Hoogeveen [2005], Loeb et al [2008], Mitra and Sambamoorthi [2006, 2008, 2009], Trani and Loeb [2012] and others. It may be noted that the studies were carried out using different methodologies and covering different geographic regions. On some occasions, the analyses based on household survey data revealed that the disabled persons belonged to the poorest income class, or the poverty rate for households with disabilities remained higher than others. Furthermore, while some studies indicate the existence of a positive relationship between disability and income poverty, others found no evidence of variations between the poverty rates of disabled and non-disabled persons. Thus, although the literature on the disability-poverty relationship indicates that there are significant links between the two, the empirical evidences however remained far from uniform. In fact, Groce et al [2011] has argued that the most significant finding that emerges from the literature is the lack of evidence on the subject. On the contrary, She and Livermore [2006] maintain that the relationship between poverty and disability remains much stronger over a period of time than the relationship in a single year.

It is generally found that the extra cost of disability is overlooked in the calculation and comparison of household poverty rates for the disabled. It is therefore maintained that since disability generates significant additional costs of living, these extra costs should be taken into account in comparing poverty situations of disabled and non-disabled persons (Zaidi and Burchardt 2003). Their results indicated that taking into account the extra costs of disability had a substantial impact not only on the relative position of disabled and non-disabled people in the

income distribution, but also on the poverty rates of UK during late-90's. The subsequent analysis found that adjustments for the extra costs of disability made the poverty rate among households with a disabled member move from 25% to above 30% amounting to an additional 1.3 to 1.8 million poor people in UK (MacInnes et al 2014).

One can comprehend that the links between disability and poverty can work through several channels, viz., disability and health, disability and illiteracy, disability and unemployment, disability and social exclusion, etc. However, research findings across the world appear to lend support for the existence of the crucial link in the disability-poverty relationships. For instance, although New Zealand remains among the developed countries and has a good international reputation on disability issues, yet the country has remained a long way from fulfilling the promises to disabled children (Wynd 2015). It is found that most families with a disabled child face financial hardship on account of medical and transport expenses and it is rare to find both parents working in the household with a disabled child. Similar analysis on Australia has indicated that the difference in poverty rates between those with and without disability remains substantial after making adjustments for the costs of disability. Saunders [2006] provided quantitative estimates of the impacts of disability costs on living standards and found that poverty rate among those with disability exceeded those without disability by more than six times. Using the Census-2000 data from the United States, Wang [2005] have argued that about 2.67 million of the 6.62 million families experiencing income poverty included one or more members with a disability. The poverty rate for families that included a member with a disability was found to be substantially higher (12.8%) than it was for families without any disabled members (7.7%). Similar findings have also been reported by Brault [2005].

Poverty and economic deprivation remains very common among people with disabilities in many developing countries. Yet, it can be observed that the relationship between disability and poverty has not been adequately examined in the context of developing countries due to the lack of data in the areas of education, employment, income, and access to social support for the disabled. The survey based research based on 1768 respondents from 8 countries from the Asia-Pacific region, viz., Fiji, India, Japan, Kazakhstan, Republic of Korea, Pakistan, Philippines and Thailand also found mixed evidence on the relationship between disability and income poverty (UNESCAP 2012). In the context of disability and development in India, Harriss-White [1996] has argued disability to be a major cause of poverty and exclusion. Pandey [2009] examined the

relationship between disability and poverty among Indian elderly population by using the National Sample Survey (58<sup>th</sup> round) data for 2002, and found higher level of poverty and income inequality among disabled elderly as compared to the non-disabled elderly.

While the above evidence across the world suggests a link between disability and income poverty, it can also be inferred that there exists a definite relationship between disability and the multi-dimensional measure of poverty. This is due to the fact that it has almost always been observed that the persons with disabilities experience lower educational attainments, work opportunities and access to health services in comparison to persons without disabilities.

### 5. Empirical Analysis:

Our analysis on the link between disability and poverty is performed by examining the relationship between disability prevalence estimates derived from the Census 2011 and the official headcount measures of poverty for 2011-12 derived by Tendulkar's methodology (GOI 2014). The examination of this relationship utilizes cross-sectional data on the percentage share of disability prevalence along with the percentage share of poverty incidence for respective states in all-India for 29 states and union territories in India. The regression model specifies state's share in all-India disability prevalence as a function of state's share in all-India poverty incidence and the estimation of the regression is performed by employing 29 cross-sectional observations on Indian states. We have depicted the regression line between the two variables that is based on a linear model.

The scatter-plot between disability prevalence and poverty incidence for the rural areas is represented in Figure 6. We observe a high positive correlation between the two indicating that the risk of falling under disability remains intense with rising poverty incidence. The fitted regressions yielded an almost 45° line and the regression performance turns out to satisfactory in terms of statistical significance of coefficients and  $R^2$ . One can notice that states like Uttar Pradesh and Bihar bears high shares of disability prevalence along with high incidence of poverty in the rural areas. These two states along with West Bengal, Madhya Pradesh, Odisha and Maharashtra convincingly confirm the direct relationship between disability and poverty for rural India.

*(Insert Figure 6)*

A similar scatter-plot of state's share in disability prevalence and state's share in poverty incidence in urban areas is provided in Figure 7. It can be found that the positive association between disability and poverty is somewhat weaker in the urban areas as compared to the association that is observed in respect of the rural India. The fitted regression line indicates a fairly close 45° line indicating direct relationship between the two. It can be seen that Uttar Pradesh has the highest proportion of disability prevalence along with the highest proportion of poor people in the urban India. The states of Maharashtra, West Bengal, Madhya Pradesh and Karnataka also confirm the direct relationship between disability and poverty incidence in the urban India.

*(Insert Figure 7)*

The scatter plots of state's share in the disability prevalence and state's share in poverty incidence in rural plus urban areas is provided in Figure 8. Once again, we observe a positive relationship between disability and poverty when the combined rural and urban scenario is considered. The fitted regression line reveals positively sloped line indicating direct relationship between the two. It is again found that Uttar Pradesh bears the highest proportion of disability prevalence along with the highest proportion of poor people among the Indian states. Besides Uttar Pradesh, the states of Bihar, Maharashtra, West Bengal, Odisha and Madhya Pradesh indicate a strong positive relationship between disability and total poverty incidence in the state. Overall, our analysis in this section suggests that the states that have consistently remained with high poverty incidence with little improvements over the years are also the states with high proportions of disability prevalence in India, viz., Uttar Pradesh, Bihar, Odisha, West Bengal, Maharashtra and Madhya Pradesh.

*(Insert Figure 8)*

## 6. Conclusions:

Information on the linkages between disability and poverty is not only crucial for understanding the circumstances and characteristics of disabled persons, but also bears some critical implications for removing the social exclusion and achieve equitable development goals in India. The existing analyses on poverty in the country have not distinguished the crucial involvement that disability could play in multiplying poverty. On the other hand, the literature on disability had seldom provided adjustments for the extra costs of disability in the calculation of poverty

rates for the disabled. In this connection, the objective of this paper was to explore on the relationship between disability prevalence across Indian states and income poverty in the context of states of India. The link between disability and poverty is likely to be reflected in the deprivation of disabled persons on other dimensions such as education, health and nutrition, employment and social support. For this reason, we also provide some supplementary inquiries to look at the educational attainments and work opportunities of disabled persons in different states of India.

The disability data as per the census 2011 data reveals some disproportionate prevalence rates across Indian states. The literacy proportion remained higher for in all the types of physical disability, viz., disabilities in seeing, hearing, speech and movement in comparison to mental disability, mental illness and multiple disabilities. An analysis of the worker-population ratio across types of disabilities reveals that a major portion of the disabled persons in India remain as non-workers. Further, a large part of the disabled non-workers are found to be dependents across different various types of disabilities in India. Subsequently, we examine the link between disability and poverty through a scatter-plot of the percentage share of disability prevalence for each state in all-India and percentage share of poverty incidence for the respective state in all-India. We find that the states with high proportion of disabled persons also contain high proportion of poor people. The states of Uttar Pradesh, Bihar, West Bengal, Madhya Pradesh, Odisha and Maharashtra are glaring examples of the disability-poverty nexus in India. Overall, our results indicate that while the inter-relation between disability and poverty remains fairly noticeable in respect of the rural, urban and total poverty, the relationship seems strong in the case of rural India.

While the occurrence of a positive relationship between disability prevalence and poverty incidence is academically interesting, it also bears crucial policy significance formulations in the Indian context. If the country's development objective is to reduce poverty and income inequality, then one has to recognize the needs of disabled persons and support the additional costs of living that disability imposes on their living. Thus, enabling the disabled persons with health and rehabilitation services, education, training and employment can provide them the livelihood and break the nexus between disability and poverty. The main implication of our results convey as to why it is so important to include disabled persons under the development focus in India.

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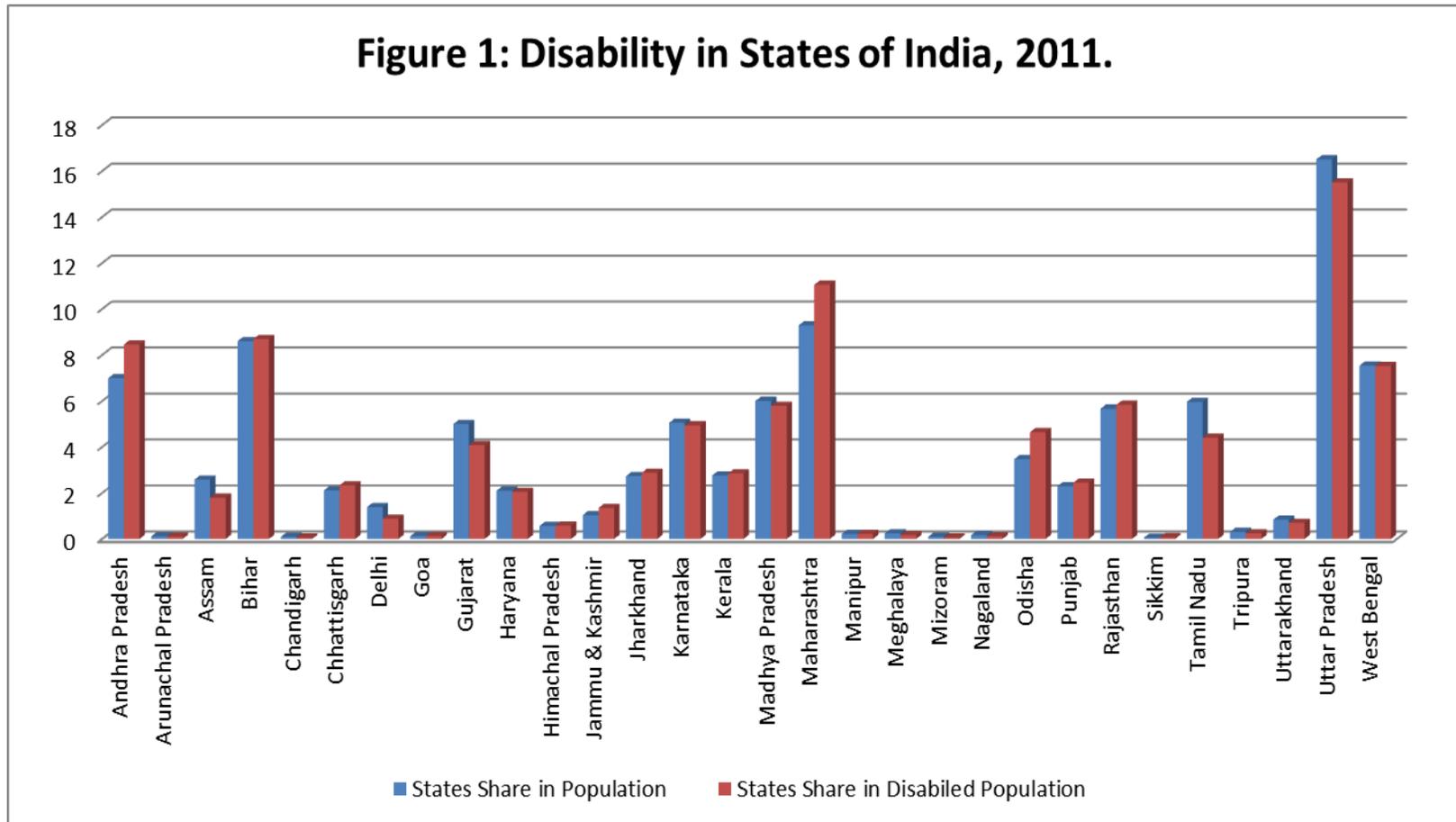
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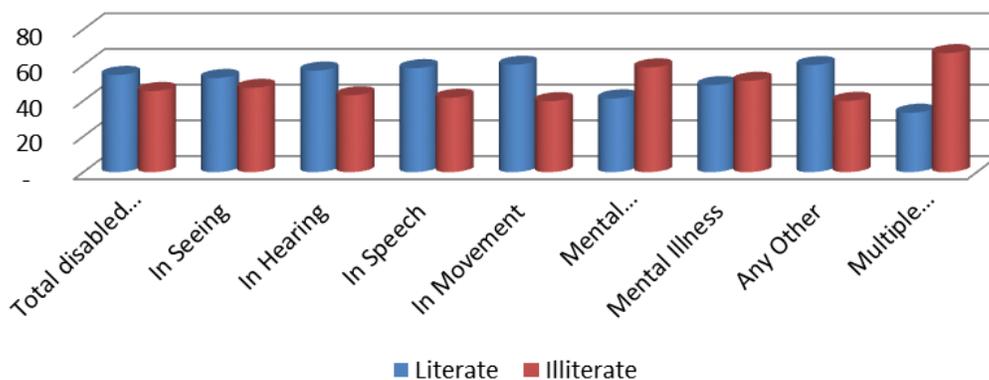
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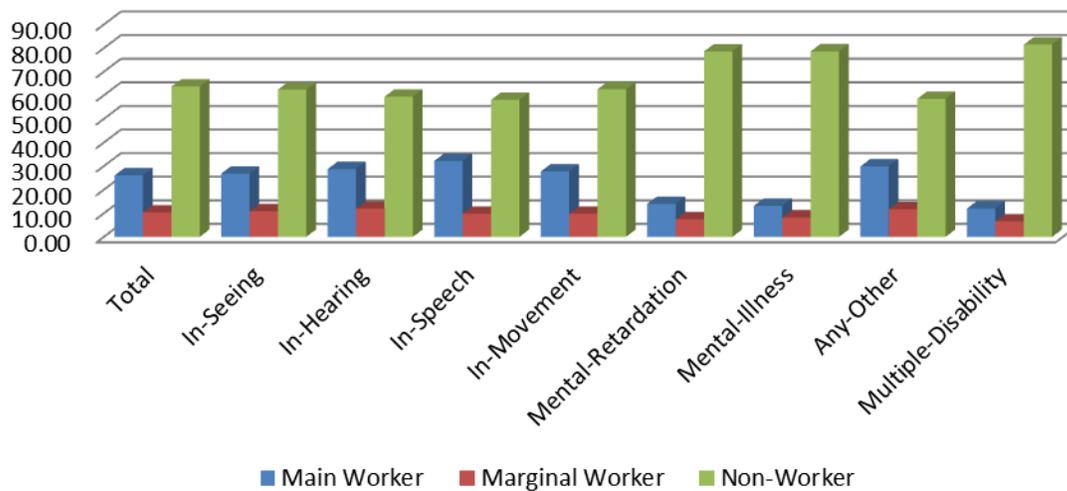
**Figure 1: Disability in States of India, 2011.**



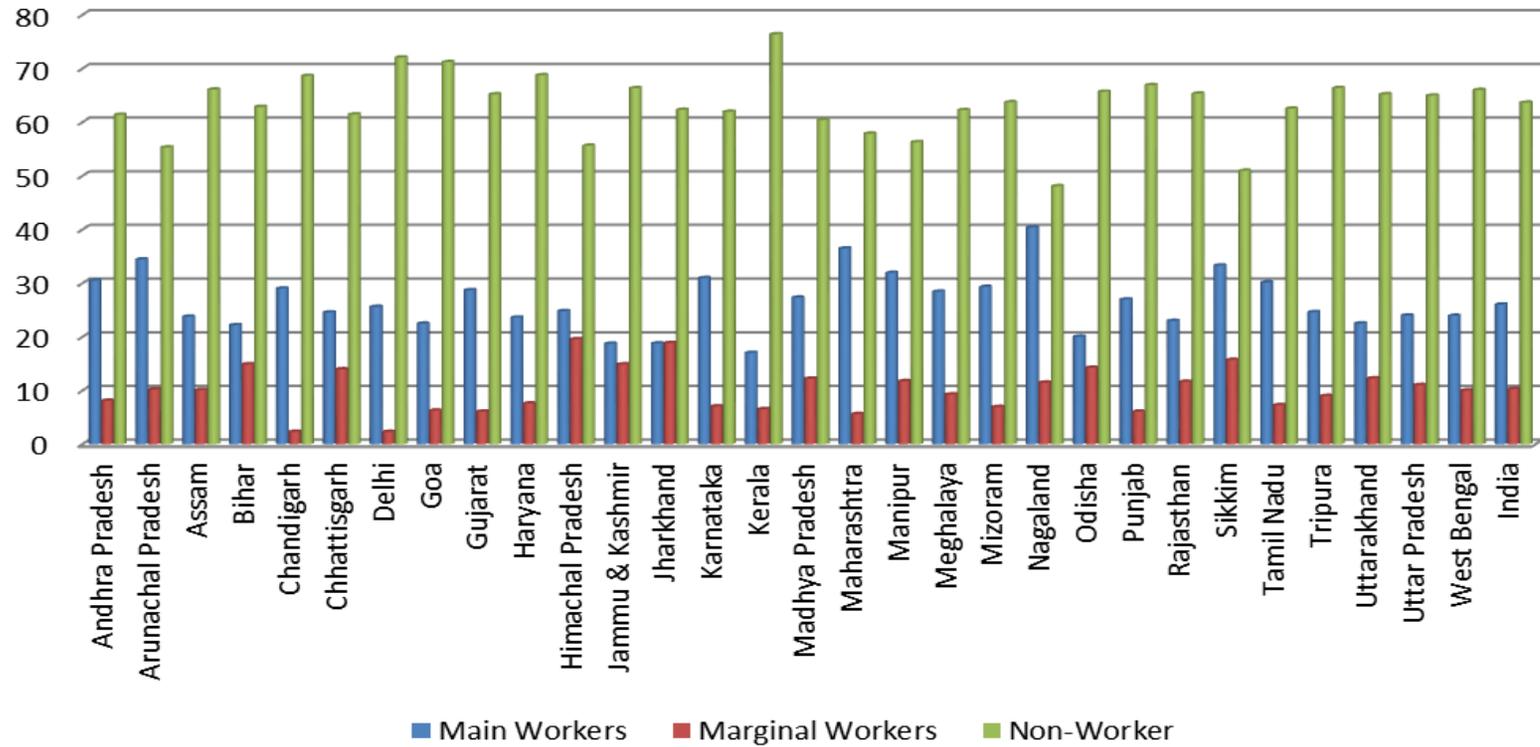
**Figure 2: Proportion of Literacy among Types of Disabled Population in India, 2011.**



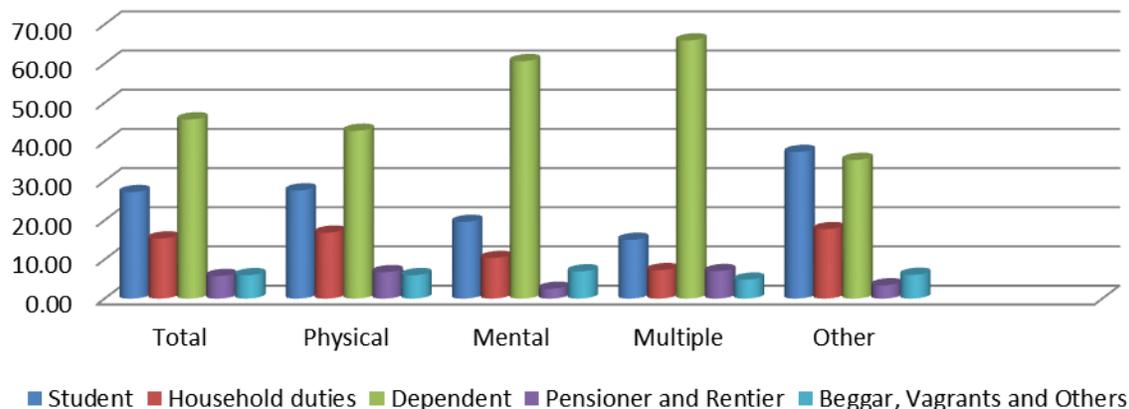
**Figure 3: Worker-Population Ratio Across Types of Disability in India 2011.**



**Figure 4: Worker-Population Ratio for Disabled Persons in States of India, 2011.**



**Figure 5: Distribution of Disabled Non-Workers in India by Occupation and by Types, 2011.**



**Figure 6: Disability and Poverty in India (Rural).**

