

The Capability Approach and Disability

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The definition of disability is of interest to disability policymakers and analysts because it has fundamental implications for eligibility for public programs, for the scope of legislation, and for the way disability prevalence is measured. The purpose of this article is to assess how an approach developed in economics to analyze issues related to the standard of living, the so-called capability approach, may help us understand disability at the conceptual level. The article first summarizes different theoretical models of disability (the medical model, the social model, the Nagi model, and the International Classification of Functioning, Disability and Health of the World Health Organization) and then presents the main components of the capability approach. The capability approach allows researchers to analyze (a) disability at the capability level; (b) potential disability; and, at the functioning level, (c) actual disability. This framework also helps explain how disability may result from three types of factors: the individual's personal characteristics (e.g., impairment, age, race, gender), the individual's resources, and the individual's environment (physical, social, economic, political). The article explores some implications of the capability approach for analyzing the employment and the standard of living of persons with disabilities.

To the layperson, the meaning of *disability* is clear and simple: It means “the inability to do something.” However, in disability and social science research, there is no consensus on what constitutes disability. There are no commonly accepted ways to define disability and to measure it. Disability has been subject to many definitions in different disciplines and for different purposes. It has been described from medical, sociological, and political perspectives, and definitions of disability have been developed and used in different contexts. Various operational definitions have been used for clinical circumstances and administrative programs, and several theoretical models have been developed (Altman, 2001). Why has there been so much effort dedicated to defining disability? At the theoretical level, defining disability is not simply an exercise in semantics: Altering the theoretical definition of disability can have far-reaching social, economic, and political implications. Administrative programs and laws use definitions that define program eligibility and legislation coverage. Those definitions, which directly affect the lives of persons with disabilities, are typically based on theoretical models. The importance of defining disability for persons with impairments, activists, researchers, the government, and international organizations explains the ubiquity of this topic in social science research (Altman & Barnartt, 2000).

One may also wonder if the lack of consensus on what constitutes disability is a bad thing after all. Obviously, it would be convenient to have a model of disability that is found superior

to others, but the multitude of models that have been developed may in fact reflect the multifaceted nature of disability. As noted by Pfeiffer (2001), many disability scholars recognize that no single model can totally explain disability. It is in this context that this article should be placed: Each disability model may bring a useful perspective on disability in a given context. This article assesses whether anything can be learned from an approach that was developed in welfare economics to analyze issues related to the standard of living and well-being.

The capability approach developed by A. K. Sen is a useful framework for defining disability and understanding its economic causes and consequences. Although the capability approach has been used in international development to analyze the link between disability, gender discrimination, and poverty (Welch, 2002), its usefulness in defining disability and formulating disability policies has not been considered. This study attempts to address that gap in the literature. Sen developed the capability approach as a set of interrelated theses in welfare economics, particularly on the assessment of personal well-being, poverty, and inequality. In *Commodities and Capabilities* (1985), Sen advocated focusing on a person's *capability* to function, that is, what the person *can* do or *can be* versus the more standard concentration on *opulence* (the person's real income) or *utility* (as in traditional welfare economics).

Under Sen's approach, capability does not constitute the presence of a physical or a mental ability; rather, it is understood as a *practical opportunity*. *Functioning* is the actual

achievement of the individual, what he or she actually achieves through being or doing. Here, disability can be understood as a deprivation in terms of capabilities or functionings that results from the interaction of an individual's (a) personal characteristics (e.g., age, impairment) and (b) basket of available goods (assets, income) and (c) environment (social, economic, political, cultural). This approach helps to explain the importance of the economic causes and consequences of disability and is closely related to the recent International Classification of Functioning, Disability and Health of the World Health Organization (WHO; 2001).

This article is divided into five sections. The first section presents different models of disability, in particular, the medical model, the social model, the Nagi model, and the International Classification of Functioning, Disability and Health. The next section describes the terminology and rationale of Sen's capability approach. The third explains that disability can be understood as a capability or a functioning deprivation under Sen's framework and presents the potential causes of disability under this approach. The fourth section relates the capability approach to models of disability and the fifth section examines the implications of such an approach for disability policy. The last section has concluding remarks.

Disability Models

Several models have been created to define disability. Here, four major models of disability are presented, and their relevant concepts and meanings are examined.

The Medical Model

The medical (or biomedical) model considers disability a problem of the individual that is directly caused by a disease, an injury, or some other health condition and requires medical care in the form of treatment and rehabilitation. The medical model attributes the problem to the individual, who has a condition that is unwanted and that places him or her in the "sick role" (Parsons, 1975). As explained by Pfeiffer (2001), "if a person has a permanent impairment which results in using a wheelchair to move around, that person will never get 'well'" (p. 31). This model is strongly normative: People are considered disabled on the basis of being unable to function as a "normal" person does. Rehabilitation has an important role to play in bringing the person back or close to the norm. The major concern of the medical model at the political level is to provide health-care and rehabilitation services. This model has been criticized on different grounds, including its normative strength (Amundson, 2000).

The Social Model

The medical model is often referred to as the old paradigm and stands in contrast to the social model of disability. The latter has at least nine different versions, which are listed and

summarized in Pfeiffer (2001): (a) the social model of the United Kingdom, (b) the oppressed minority model, (c) the social constructionist version of the United States, (d) the impairment version, (e) the independent living version, (f) the postmodern version, (g) the continuum version, (h) the human variation version, and (i) the discrimination version. The first two versions are briefly reviewed here.

In general, the social model sees disability as a social construct. Disability is not the attribute of the individual; instead, it is created by the social environment and requires social change. Disability activists in the Union of the Physically Impaired Against Segregation (UPIAS) developed the U.K. social model, at the heart of which lies societal oppression (Oliver, 1990). The core definition of the British social model comes in the UPIAS document *Fundamental Principles of Disability*, an edited version of which is reprinted by Oliver (1996): "In our view, it is society which disables physically impaired people. Disability is something imposed on top of our impairments by the way we are unnecessarily isolated and excluded from full participation in society" (p. 22). As noted by Pfeiffer (2001), the U.K. social model is quite marxist in its view of disability, a view not often found in the United States.

The second version of the social model reviewed here, that of the oppressed minority, says that persons with disabilities face discrimination and segregation through sensory, attitudinal, cognitive, physical, and economic barriers, and their experiences are therefore perceived as similar to those of an oppressed minority group. Hahn (2002), among others in the United States, supports this view:

Social inequalities encountered by persons with disabilities are considered as similar to those encountered by other minorities such as "extraordinarily high rates of unemployment, poverty and welfare dependency; school segregation; inadequate housing and transportation; and exclusion from many public facilities." (p. 171)

Drawing the overall picture of disability models is not as simple as presenting a dichotomy between a medical model and a social model. There are other models that have developed on their own, as extensions of the medical or the social model or as integrations of the two. In the following section, two of these models are discussed: (a) the Nagi model, which has wielded substantial influence for the last three decades at the policymaking level in the United States and in the economics of disability in general, and (b) the recent International Classification of Functioning, Disability and Health of the WHO, the worldwide scope of which gives this model a strong potential role in data collection efforts and policy development in the years ahead.

The Nagi Model

Pathology is the starting point of Nagi's (1965) model, also called the *functional limitation paradigm*. Pathology refers to

an interruption of normal body processes. An active pathology or residuals of pathology may lead to impairments, which are anatomical or physiological abnormalities or losses. Nagi identifies functional limitations as the restrictions that impairments impose on the individual's ability to perform the tasks of his or her roles and normal daily activities. These roles include family roles (e.g., looking after a child), work roles (having a job), community roles, and other interactional roles as well as self-care activities. Nagi (1991) has defined functional limitation as "an inability or limitation in performing socially defined roles and tasks expected of an individual within a socio-cultural and physical environment" (p. 315). Here, impairment is at the source of a causal chain leading to disability, which eventually becomes a social construct. For instance, say a 12-year-old girl with mental retardation does not attend school but stays home with her parents helping with household chores. If she lives in a society where young girls are not expected to go to school, but to stay at home, then she does not have a disability under the Nagi model. In contrast, if she lives in a society where girls her age attend school, then she does not perform this socially expected role and is therefore considered disabled. The Nagi model therefore promotes a social and cultural relativistic view of disability.

The International Classification of Functioning

The WHO developed the International Classification of Impairments, Disabilities and Handicaps (ICIDH) in the early 1980s. It was recently revised and renamed the International Classification of Functioning, Disability and Health (ICF). Conceptually, the ICF is presented as an integration of the medical and the social models: "ICF attempts to achieve a synthesis, in order to provide a coherent view of different perspectives of health from a biological, individual and social perspective" (World Health Organization, 2001, p. 20). The ICF model is sometimes termed the *biopsychosocial model of disability* (Bickensack, Chatterji, Badley, & Ustun, 1999).

The ICF model posits that disability has its genesis in a health condition that gives rise to impairments, and then to activity limitations and participation restrictions within contextual factors. Impairments are problems in body function or structure causing a significant deviation or loss. An activity is the execution of a task or action by an individual, and participation is the "lived experience" of people in the actual context in which they live. Participation is not understood in terms of a role to play but in terms of an involvement in a life situation that can mean "being included or engaged in an area or being accepted or having access to needed resources" (Altman, 2001, p. 110). Contextual factors refer to the entire background of an individual's life, including personal factors, the environment (home, school, and work), services available in the community (e.g., transportation, health care, social services), and cultural factors (laws and attitudes). Activity and participation domains include, among others, learning and applying knowledge, mo-

bility, self-care, education, remunerative employment, and economic self-sufficiency. These individual domains can come into play within different roles, but they are not organized as a set of tasks geared toward performing a particular role. *Functioning* and *disability* are two umbrella terms, one being the mirror image of the other. Functioning covers body functions and structures, activities, and participation, whereas disability includes impairments, activity limitations, and participation restrictions. Interactions between the different components of the ICF are shown in Figure 1.

The ICF is the only conceptual model of disability that also comes close to offering a concrete classification system of individuals. It gives two scales of 0–9 for assessing individuals. A *capacity qualifier* measures an individual's ability to execute tasks or actions in a standardized environment to neutralize the impact of different environments on the abilities of the individual. A *performance qualifier* measures the actual lived experience of people in the actual context in which they live. The ICF framework is the closest to a definition of disability found under the capability approach.

The Capability Approach

Sen's capability approach was developed as a framework to analyze different concepts in welfare economics, including standard of living, personal well-being, quality of life, and poverty. Standard of living is traditionally measured by the ability to buy a basket of commodities. Sen refers to this approach as the opulence view. Standard of living is also measured in terms of utility, where utility is meant as pleasure and happiness, or as a tool for valuation and choice. Sen argues that the standard of living concept encompasses more aspects than the opulence and the utility measures. Under the capability approach, Sen focuses on the type of life that people are able to live, that is, on their capability to achieve or accomplish, on what they succeed in being or doing. The possession of commodities is valuable only to the extent that it enables the person to do or be a range of things. A commodity is considered to have "characteristics." For instance, for a person with a spinal cord injury, a wheelchair has the characteristic of providing transportation; it does not have such a characteristic for a person who can walk.

In Sen's approach, *capability* means "practical opportunity." The ordinary meaning of *functioning* is an activity, something a person does. In Sen's approach, functioning has a broader sense; it includes activities as well as desirable states, such as "being well nourished" or "being free of malaria." Sen illustrates the difference between capabilities and functionings through the example of two people who are starving. They achieve the same functioning, malnourishment, but they have different sets of capabilities. One is starving due to religious faith; she has *decided* to starve, whereas the other is starving from poverty.

Overall, Sen is concerned with a person's interests, more than a person's actions or behaviors. Sen distinguishes two ways

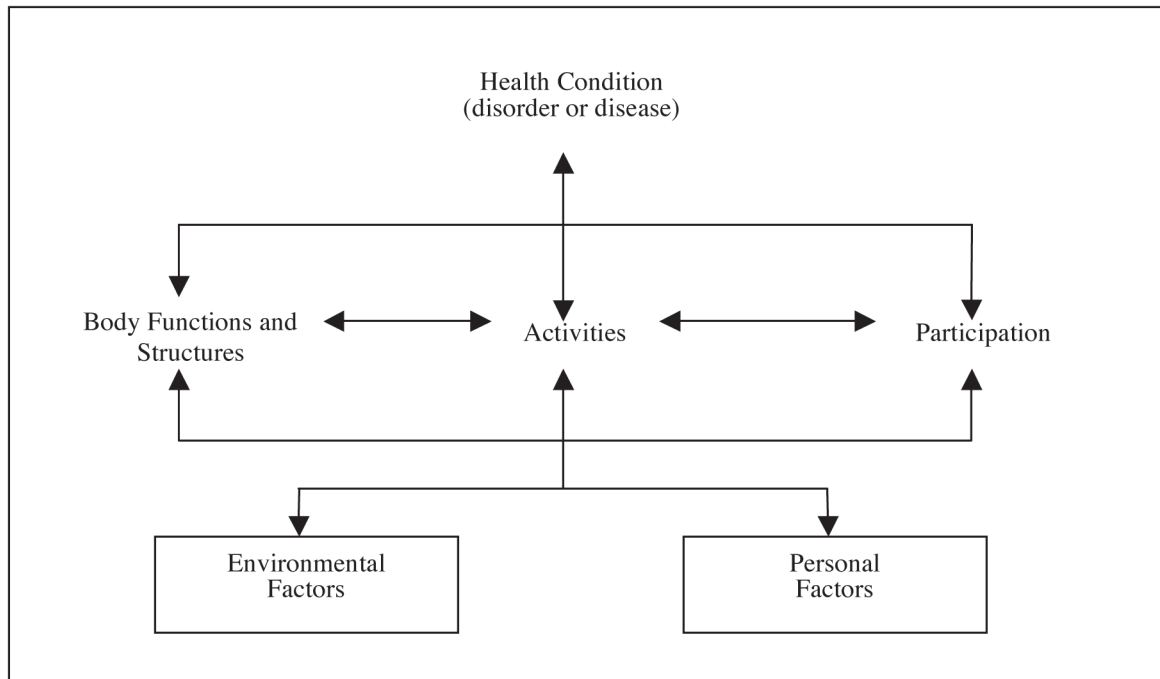


FIGURE 1. The International Classification of Functioning, Disability and Health. Source: World Health Organization (2001).

of seeing a person's interests and the person's fulfillment: "well-being" and "advantage." Well-being is concerned with a person's achievement: How "well" is his or her "being"? Well-being is therefore concerned with the functionings, what a person actually achieves being or doing. Advantage refers to the real opportunities facing a person, from which the person will have the freedom to choose. The person's "capability set" is a set of functioning vectors from which the person has the freedom to choose.

The foregoing concepts and the way they relate to each other are shown in simplified form in Figure 2 (see Note 1). The basket of commodities available to a person, the environment in which she lives, and her personal characteristics influence the capability set, which leads to the functionings, or what the person achieves in being or doing. The functionings are a subset of the capability set: They are the capabilities that the person chooses to achieve.

The cost of achieving a given capability varies depending on the environment of the person, including the average opulence of the society in which the person lives. Applied to disability, the cost of achieving mobility for persons with mobility limitations varies tremendously from country to country depending on the local availability of assistive technology as well as the local physical environment. The cost of achieving a given level of maintenance care through personal assistance will be higher in a society that is generally richer. This approach is not a rigid framework with lists of commodities, environmental dimensions, personal charac-

teristics, capabilities, and functionings. Sen has voluntarily left the capability approach incomplete to allow for plurality. Sen does not propose a single metric to measure well-being, nor does he give a method to rank capability sets. Depending on the issue at stake and the circumstances, a particular variable can be a personal characteristic, a capability, or a functioning.

Because the area of interest here is disability, this idea is illustrated using examples related to disability. Education can be considered a "personal characteristic" that influences work as a functioning (e.g., what education do working persons with impairments have?), as a "capability" (e.g., do persons with impairments have the opportunity to get an education?), or as a "functioning" (e.g., what is the education level of persons with impairments compared to those without?). Sen's capability approach has the advantage of having wide coverage in that it includes all types of functionings, from basic ones (e.g., nutrition, shelter, sanitation, health) to complex ones (e.g., self-respect, happiness, the ability to appear in public without shame). Sen shows the importance of assessing poverty on the basis of the ability to achieve some *basic* functionings, rather than on income only. He does not make a definite list of those basic functionings. Depending on the environment and the issue under consideration, the scope and length of the list will vary. In dealing with extreme poverty in developing countries, Sen includes life expectancy, infant mortality, the ability to be well nourished and well sheltered, basic education, and medical care as basic capabilities.

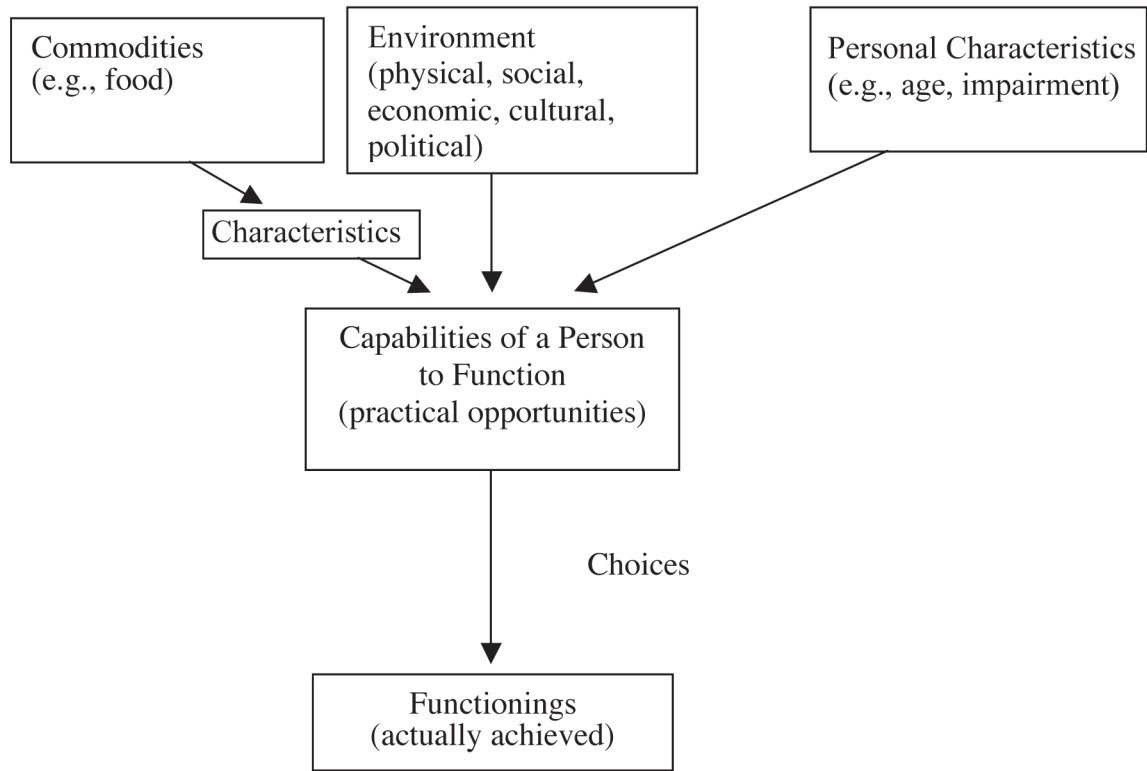


FIGURE 2. The Capability Approach. *Note.* This is a representation in chart format of some of the disability models presented earlier. These models are described in detail in Altman (2001).

Although this voluntary incompleteness has its value at the conceptual level, it makes the capability approach difficult to implement at the operational level. Social scientists and philosophers have produced different versions of a list of dimensions of what constitutes “the good life.” Alkire (2002a, 2002b) reviewed several such lists, including John Rawls’s list of primary goods, Doyal and Gough’s list of needs, and Martha Nussbaum’s list of capabilities. Such lists are beyond the scope of this article.

Understanding Disability Through the Capability Approach

Health is a major concern in Sen’s capability approach, whether it is considered as part of an individual’s well-being or whether health equity is analyzed as part of the justice of social arrangements (Sen, 2002). Disability has not received as much attention as health in Sen’s work. However, his work is peppered with references to persons with impairments or chronic illnesses (see Note 2). His focus is on the impact of personal characteristics, including what he calls a handicap or disability, which is an impairment in disability theory, on a person’s capabilities set and the assessment of poverty and well-being. Impairment is considered an example of the personal charac-

teristics that should be taken into account in assessing poverty and personal well-being. Under the traditional opulence or utility approach in economics, a person is considered better off than someone else if he or she can command more commodities, irrespective of whether the person has an impairment. For instance, according to Sen (1999):

A person who is disabled may have a larger basket of primary goods and have less chance to lead a normal life (or to pursue her objectives) than an able-bodied person with a smaller basket of primary goods. Similarly, an older person or a person more prone to illness can be more disadvantaged in a generally accepted sense even with a larger bundle of primary goods. (p. 74; see Note 3)

Can the capability approach help to define disability at the conceptual level? In other words, does it account for the experience of persons with disabilities effectively? Sen has not used the capability approach to define disability, so the answer to this question attempted here is intended simply as an interpretation of Sen’s approach. It can be argued that the capability approach is indeed a useful framework for defining disability. Under the capability approach, disability may be an-

alyzed at two separate levels, as a deprivation of capabilities or as a deprivation of functionings.

At the level of personal characteristics, this study uses the concept of an impairment rather than a disability, and impairment is defined as a physiological, mental, or anatomical loss. In terms of capabilities and functionings, deprivation results from the interaction among the resources available to the person, personal characteristics (e.g., impairment, age, gender), and the environment.

Potential and Actual Disability

As noted previously, capabilities are practical opportunities and are not directly observable. Disability occurs when an individual is deprived of practical opportunities as a result of an impairment. For instance, a 19-year-old who suffers a brain injury is considered disabled if his practical opportunity to attend college is restricted, in contrast to an individual with a similar basket of goods, in the same environment, and with similar personal characteristics except for the impairment. For the purposes of this examination, disability at the capability level is referred to as *potential disability*. The onset of a severe physical or mental impairment will almost inevitably lead to a reduction in the range of the individual's practical opportunities, and in the capability set, and thus to potential disability. To use Sen's terminology, it will not leave an individual's advantage or freedom unchanged.

Whether the individual is actually disabled depends on whether the impairment places restrictions on the individual's functionings. At the functioning level, the focus is on what an individual values doing (or being), and on what the individual succeeds in doing/being. In this examination, disability at the functioning level is referred to as *actual disability*. An individual is disabled if he or she cannot do or be the things he or she values doing or being. Such assessment would be entirely subjective. It would need to be dynamic and discontinuous because a person may well adjust to an impairment if the person was not born with it and acquired it later in life. Indeed, through adaptive preferences, a person may change the way he or she values functionings and may well consider himself or herself as disabled right after the onset of an impairment but not so 5 years later. This adjustment may also take the form of "compensating abilities," a term created by Qizilbash (1997) to refer to the phenomenon whereby people, in the context of the capability approach, adjust their abilities in the face of deprivation.

Causes of Disability

Under the capability approach, disability may be understood as being the result of a combination of different factors. It may result from (a) the nature of an impairment and other personal characteristics (e.g., age, gender, race), (b) the resources available to the individual, and (c) the environment. First, deprivation can result from the very nature of the impairment,

irrespective of other personal characteristics, the amount of resources available to the individual, and the environment. For instance, if a person's impairment causes constant pain, due to which the person is unable to have access to practical opportunities (e.g., go out of the house, engage in work or leisure), it is the intrinsic nature of the impairment that deprives the person of capabilities and makes him or her disabled.

Second, deprivation can be the result of barriers in the environment, in its physical, economic, social, political, and cultural aspects. For instance, a person with a disfigurement due to leprosy may have her own opportunity set reduced not by the condition itself but by the stigmatization or by discrimination in interpersonal relations. Third, deprivation can result from the economic constraints that an impairment may place on the availability of, and demand for, resources, or may induce higher costs to achieve a given level of advantage or well-being. In this respect, Sen (1992) noted,

Sometimes the same handicaps, such as age or disability or illness, that reduce one's ability to earn an income, can also make it harder to convert income into capability. Often, a high proportion of the poor in the advanced countries have such handicaps, and the extent of poverty in such countries is substantially underestimated, since it overlooks the "coupling" of income-*earning* handicap and income-*using* handicap in generating capability. For example, an old person has a much harder time in being free from disease, in leading a healthy life, in achieving mobility, in taking part in the life of the community, in seeing friends, and so on. And these income-using disadvantages can tremendously compound the feature of low earning power. (p. 113)

Taken to an extreme, the lack of resources can also be in itself the catalyst of impairment and/or disability. A person with a chronic condition, say diabetes, who has no health insurance coverage and who lacks the necessary resources to be able to have an ongoing treatment, may well see his or her condition deteriorate to the point where an impairment develops and the person becomes deprived in terms of capabilities and functionings. The lack of resources available to an individual constitutes a possible cause of disability. An impairment is a prerequisite to disability, but it is only one of the factors, along with the person's other characteristics (e.g., age, gender, race), the resources available, and the environment, that lead to capability or functioning deprivation—in other words, to disability.

Determination of Disability

For social and political purposes, it is necessary to identify persons with disabilities in a particular region or country. There cannot be an individual subjective assessment of disability, as described earlier, based on valued capabilities and functionings; but persons with impairments could well be involved in

selecting the evaluative dimensions of disability. At a regional or national level, reference needs to be made to a standard that accounts for the context of the particular individual and other nonimpaired persons with similar characteristics (e.g., age, gender), with the same level of resources, and with the same environment (e.g., urban, suburban, rural). In each of these contexts, one would need to establish a set of relevant functionings, a method whereby the functionings of a person could be ranked compared to others, with a minimum level below which a person would be considered disabled. A similar standard assessment could be performed at the capability level. For instance, what opportunities are available in terms of work, education, leisure, and social life to an individual in the same environment with a similar basket of goods and similar personal characteristics except for the impairment? If disability is defined in terms of a deprivation of capabilities (or functionings), then one needs to select a set of relevant capabilities (or functionings) to form an "evaluative space." This selection of relevant functionings will be influenced by societal norms and expectations.

For the purpose of defining poverty, Sen (1992) has recognized that the selection of relevant capabilities and their weighting is a value judgment and a social choice exercise. Sen does not propose a definitive list of relevant capabilities for poverty assessment. A list of relevant capabilities and functionings, say for a given country, is needed, however, if the capability approach is to be applied to the measurement of disability. In the spirit of the capability approach, such a list would need to be prepared in a democratic and participatory fashion.

The Capability Approach and Other Disability Models

Understanding disability through the capability approach involves several noteworthy differences that distinguish this approach from the others described earlier. First, the capability approach allows disability to be differentiated at two levels: at the capability level, or as a *potential disability*, and at the functioning level, or as an *actual disability*. Apart from the ICF, the previously discussed models do not differentiate between two levels of disability. The ICF includes a capacity qualifier to measure capabilities and a performance qualifier to measure functionings.

Second, there is considerable interpersonal variation in the link between a given impairment and disability resulting from a variety of factors. The capability approach accounts for these factors at the individual level through the resources available, the environment, and personal characteristics. The capability approach clearly accounts for human diversity (Sen, 1992) through the inclusion of personal characteristics (e.g., race, gender, impairment), which the social model and the Nagi model do not address as explicitly. The ICF recognizes that an individual may have restricted participation in a major life area for many reasons, including personal factors (World Health Organization, 2001). In practice, however, in its classification the ICF does not cover circumstances that are not health related

(Bickensack, Chatterji, Badley, & Ustun, 1999), such as socio-economic factors. The assessment of these personal factors is left to the discretion of the user of the classification if needed. Thus, the scope of capability and the functioning deprivation it addresses is limited to issues related to health.

Finally, among the many factors that influence disability, the capability approach encompasses an economic dimension of disability through an account of the economic burden and the economic environment of the person with an impairment. It adds an intrinsic economic dimension to disability. By definition, impairments limit the earning capacity and put constraints on the spending patterns of a person, and thus constitute an economic burden at the individual and household level and may lead to a disability at the capability or functioning level. The economic environment influences the practical opportunities, in terms of employment or self-sufficiency, that persons with impairments have, as well as the costs of achieving given functionings. Understanding the economic burden and the economic environment of disability is part of understanding disability.

Except for the social model, this economic dimension of disability is not fully addressed in the other models. Clearly, this dimension is absent in the medical model. The Nagi model is focused on roles, and if one is interested in the work role, one would certainly account for the restrictions an impairment may place on an individual's capacity to work and the foregone earnings associated with those restrictions. The economic deprivation associated with a disability can therefore be understood as the consequence of an inability to perform the work role, and the Nagi model thus implicitly and indirectly reflects this economic aspect of disability. However, in the Nagi model, the environment is purely social; it is there to define the roles that are to be expected of individuals. The fact that the economic environment and the available resources may directly affect whether the person is disabled is not accounted for.

In the ICF model, consideration is given to the economic achievements of individuals in terms of remunerative employment and economic self-sufficiency in the activity and participation domains. However, once again, the fact that the resources available to the person and the economic environment directly influence whether a person is considered disabled remains unaddressed. Among the disability models reviewed, the social model is the only one that recognizes that poverty is disabling (e.g., Bill, McBride, & Seddon, 2002). In the social model, disability is generally understood as the result of social oppression, which can start in the form of poverty and later on lead to disability. Under the capability approach, poverty is seen as a factor that interacts with the individual's characteristics and environment, leading to disability.

Can we consider existing disability models as interpretations of the capability approach with a list of disability-relevant capabilities? The Nagi model might be interpreted as a model where the relevant functionings are "socially expected roles," whether work, education, or play related. Similarly, the medical and social models might be interpreted as models where

relevant functionings are, respectively, normal bodily functional capacities and symptoms of societal oppression. The only strength of the capability approach would then be to provide an overall framework where the selection of relevant evaluative dimensions is an explicit social choice exercise. The social, medical, and Nagi models would stand with their own sets of evaluative criteria.

However, there is a difference between these models and the capability approach that restricts the interpretation of the former as narrow applications of the capability approach. In the Nagi, the medical, and the social models, the concern for the lived experience of the individual, her achievements or aspirations, seems to be more limited than under the capability approach. Asking a person if she can work (Nagi model), or lift 10 pounds with one hand (medical model), regardless of whether she wants to and needs to, whether there is any job for her in the economy, or whether she has anything that heavy to carry, appears restrictive. The same applies under the social model when one asks a person with an impairment if she feels oppressed by the environment she lives in.

In this respect, the ICF model stands out from the other disability models in that it has a concern for a wide range of functionings in a person's life. It is important to note that the term *functioning* has different meanings in the ICF model and in Sen's capability approach. In the ICF, it includes functionings that are directly related to health (body functions and structures) as well as activities and participation in a wide range of life domains (e.g., education, self-care, work). Sen's concept of functionings is broader in that it includes activities (e.g., playing soccer) as well as desirable states of persons (e.g., being fit), and it can be general (e.g., being free of thirst) or specific (e.g., drinking wine). The range of functionings under consideration in the ICF includes functionings that are relevant to disability and is broad enough to reflect the lived experience of the person. As such, the ICF may be understood as a specific application of the capability approach.

An additional similarity between the two approaches is that disability in the ICF has the same meaning as actual disability as it has been defined here: Both refer to functioning deprivation. However, for the ICF to be a faithful application of the capability approach, as noted earlier, it would need to be modified to account for the economic constraints and the economic environment of the person, as well as the personal characteristics (e.g., gender) that may exacerbate the capability deprivation that results from an impairment. This is particularly important for the ICF because it is being implemented worldwide, including in a lot of countries where disability often goes hand in hand with poverty.

Implications for Disability Policy and Research

If the capability approach helps in understanding what disability is, it may have its own set of implications on policies and

research. The first general implication that arises is the need to consider whether disability policymaking should be concerned about capabilities or functionings. In general, Sen has argued that public policy should deal with capabilities rather than functionings: For instance, "an affluent person who fasts may have the same functioning achievement in terms of eating or nourishment as a destitute person who is forced to starve, but the first person does have a different 'capability set' than the second" (the first *can* choose to eat well and be well nourished in a way the second cannot) (Sen, 1999, p. 75). However, in practice, a person's capabilities are difficult to observe, and data are usually available for functionings. Therefore, policymakers may have to settle for functionings. In light of the capability approach, two issues that have important implications for disability policy, the assessment of employment capability and the standard of living of persons with disabilities, are discussed next.

Employment Capability and Disability

Employment is important in its own right as a source of income as well as social participation for persons with or without impairments. For persons with impairments, it is particularly important because disability has often been assessed through a work performance criterion. A person is considered disabled if she is limited in the ability to work. This focus on work performance, that is, on work functioning, is somewhat convenient, because work is an observable variable from which an individual's disability can be inferred. As noted by Haveman and Wolfe (2000), "when a paraplegic can be more successful in the labor market (or selfcare) than a person with a combination of varicose veins, back problems, and low education, measuring disability through assessing characteristics seems less satisfactory than observing performance directly."

Persons with impairments who work obviously have the capability to work. Among those who do not work, there are persons who have the capability to work but prefer not to work and there are persons who do not have the capability to work, given constraints arising from their personal characteristics (including their impairment, age, race, gender), the environment (e.g., the state of the labor market), and availability of resources.

Differentiating between these two types of nonworking persons has obvious merits for public policy purposes but remains difficult to achieve through a questionnaire. In existing data sets, disability prevalence is typically assessed through self-reported impairment, activity limitation, or work limitation questions. For instance, the Survey of Income and Program Participation's work limitation question is as follows: "Do you have a physical, mental or health condition which limits the kind or amount of work you can do?" An answer provides a person's self assessment of whether her work capability is constrained by an impairment. Other factors related to the characteristics, resources and environment of the individual may also restrict work capability and may therefore influence

the person's response. For instance, the person may be limited in the kind of work he or she does because no employer seems to be willing to accommodate the impairment, in which case the interaction of the impairment with the environment is responsible for the work limitation. Another person may be limited in the amount of work he or she can do because the impairment requires long periods of rest during the day. Both persons would report work limitations, but policy implications would be quite different in both cases once the causal factors leading to the work limitations become known. Researchers should therefore exercise great caution while using work limitation questions to assess trends in labor force participation of persons with disabilities to derive policy implications (see Note 4). Identifying the reasons for such trends in the employment of persons with disabilities is essential to formulate policies that encourage persons with disabilities to participate in the labor force.

Such policies are aimed at bringing down some of the barriers these persons face in the labor market and thus enhance their work capabilities. Benefit schemes such as SSI (Supplemental Security Income) or SSDI (Social Security Disability Insurance) compensate persons who do not have the capability to work. When policymakers are concerned with providing a safety net to persons who are limited in their ability to work because of a physical or mental impairment, clearly they have to develop practices to assess the individual's work capability. For instance, the Social Security Administration has complex procedures based on medical listings of impairments, vocational factors (age, education, work experience), and the availability of relevant occupations in the national economy. If the relevant capability is work, then the question under the capability approach is as follows: Does the person have the practical opportunity to work given her personal characteristics (age, impairment, education, work experience), environment (local economy, transportation, laws), and resources (assets, income)?

As an example, consider the following two persons, referred to as A and B. They have similar personal characteristics and resources: They both are 35-year-old women who recently suffered a similar physical injury and are now wheelchair users. They both hold bachelor's degrees and used to work as administrative assistants prior to the injury, and they have approximately the same amount of assets, mainly in the form of savings. A and B live in different environments: A lives in Washington, DC, and B lives in rural Vermont. A and B both quit their previous jobs because the buildings of their employers were not wheelchair friendly. A soon found another job in the city, and she can use public transportation to get to work. B cannot use public transportation and had to use most of her savings to buy a car adapted to her new needs. B cannot find another job in the area where she lives. She could move to a city or to another county where there are more job vacancies, but she prefers not to live away from her friends and relatives, who sometimes provide her with personal assistance. She is unsure as to whether she could find another job and afford personal assistance in another place, so she applies for SSDI.

Clearly, A and B have different capability sets despite having similar personal characteristics and resources. The local socioeconomic environment is a facilitator in the case of A and a barrier in the case of B. B may well be denied benefits on the basis that there are jobs in the national economy that she could perform. In this case, the capability set is evaluated within a standardized environment, that of the U.S. national economy, rather than the local environment in which the person actually lives, and does not take into account the constraint on resources a person may face should she decide to move to another environment.

This example illustrates the complexity of determining who is disabled due to a limited capacity to work, and who is not. Of course, the capability approach does not solve the difficult problem of establishing a standard for the determination of disability. However, in the context of the capability approach, the general answer to this complexity would be to have a personalized assessment of disability to account for the various personal and environmental factors that lead people to achieve a state of employment or unemployment, and hence to determine their eligibility for disability benefits.

The capability approach also suggests that programs aimed at addressing the economic implications of disability may be effective ways to promote the labor force participation and economic self-sufficiency of persons with disabilities. Such programs may take the form of subsidies for on-the-job accommodations made by employers or for the individual's cost of going to work. They may also provide assistance in the form of temporary benefits to alleviate the constraint on resources resulting from an impairment until a person finds employment.

Evaluating the Standard of Living

In addition to employment, the capability approach addresses the economic resources and needs of persons with disabilities. Through the capability approach, disability, like poverty, can be defined as a capability deprivation. Sen's capability approach provides a powerful framework for examining various forms of deprivation, such as disability, gender discrimination, and poverty, and point toward neglected areas of research (see Note 5). Although poverty and disability can both be described in terms of capability deprivation, they are different concepts and should be specified over different dimensions of capabilities. However dimensions of capabilities are selected, the capability approach provides an important conceptual framework for relating poverty and disability. Governments and development organizations have traditionally given little attention to poverty and disability. Recently, however, poverty and disability have been linked as part of a "vicious circle" in the international development literature (see Note 6). "It is a two-way relationship—disability adds to the risk of poverty and conditions of poverty increase the risk of disability" (Elwan, 1999, p. i). "The result of the cycle of poverty and disability is that people with disabilities are usually amongst the poorest of the poor" (Department for International Develop-

ment, 2000, p. 2). The capability approach provides a conceptual framework for this cycle of poverty and disability by including the resources available to and the economic environment of the person in the factors that may lead to disability. As noted previously, poverty alone may be the catalyst for an impairment or a disability. This is especially true in developing countries, where disability largely results from preventable impairments associated with communicable, maternal, and perinatal diseases and injuries. For instance, UNICEF (2002) has estimated that in developing countries 10% of children are born with impairments that are the result of preventable diseases or conditions, armed conflicts, or landmines. Limited work has been done to show the impact of poverty on disability, in both developing and industrialized countries (see Note 7). The capability approach points toward the need to better understand the socioeconomic determinants of impairments and disabilities and to promote prevention as an essential element of policies jointly addressing poverty and disability.

At the same time, the capability approach focuses attention on the economic resources and needs of persons with disabilities, and on the economic well-being of this subgroup of the population and how it compares with that of the general population, for example, in terms of income, asset ownership, saving behavior, and economic needs. The economic well-being of persons with disabilities has received limited attention in both developing and industrialized countries. It appears that only the income aspect has been covered in previous work on the economic well-being of persons with disabilities. The few studies on the economic well-being of persons with disabilities (Haveman & Wolfe, 1989, 1999; Haveman, Holden, Wolfe, Smith, & Wilson, 2000; Moon, 2002) have generally equated economic well-being with income, whether it comes from work earnings or disability benefits. For instance, Haveman et al. (2000) compared the household income of women with disabilities who received SSDI to that of women without disabilities and assessed the extent to which SSDI has prevented women with disabilities from falling below the poverty threshold.

The Social Security Administration reports annually on the poverty status of disabled beneficiaries by applying the standard poverty threshold to SSDI and SSI beneficiaries. This work assumes that the minimum standard of resources encapsulated in the poverty threshold is sufficient to meet the needs of persons with disabilities and that the full economic well-being impact of disability can be identified from income data. Although income is important, the effects of disability on economic well-being also need to be assessed from demand data. Returning to the capability approach, disability affects the cost of achieving a given level of well-being. Some commodities are required only by persons with disabilities, whether they are fixed inputs (e.g., wheelchairs) or variable inputs (e.g., amount of personal assistance required) and may induce higher costs of living.

Related to the notion of needs assessment from demand data is the question, Do persons with disabilities have specific economic needs? If they do, are those needs compensated for

by Social Security benefits? In practice, it is difficult to assess those needs because the definition of *need* itself is value based and will vary depending on who tries to define it. However, some assessment of the costs of disability at the individual and household level would help determine the income needs that result from disability. Very limited work has been done to that effect, whether through studies on cost of illness or by assessing the spending patterns of persons with disabilities. Cost-of-illness studies are descriptive studies that give information on the overall costs of a particular condition to society (Hodgson & Meiners, 1982). Costs of illness can be estimated through a top-down or a bottom-up strategy. The top-down approach uses aggregate figures on resource consumption; the bottom-up approach uses data collected from a sample of the population with the condition. Such studies generally focus on the societal cost of a condition, although a few of them based on the bottom-up strategy have also estimated the costs of the condition to the household or the individual (e.g., Berkowitz, O'Leary, Kruse, & Harvey, 1998).

Even less work has been done measuring directly the consumption patterns of persons with disabilities. A study by Jones and O'Donnell (1995) appears to be the only one that estimated the costs associated with a disability at the household level. Costs were assessed for households in the United Kingdom in different categories (gas, transport, food, alcohol, clothes, and "other"), and estimates were used to construct equivalence scales. The results indicate that disability has a positive impact on consumption costs associated with gas and transportation. The study did not cover the health-care needs of persons with disabilities, although these are key for persons with disabilities. Klavus (1999) also used equivalence scales, but for the purpose of demonstrating that health-care needs have a considerable effect on the welfare of households in Finland. He found that a household with a chronically ill individual needs 40% more income to reach the income level of a healthy reference household. More work is required to understand the economic needs of persons with disabilities and evaluate their income requirements. Some countries, such as the United Kingdom, compensate persons with disabilities for the extra costs related to personal assistance and mobility needs. Although such allowances do not exist in the United States, providing estimates of disability-related expenses at the household level would allow researchers to assess the adequacy of the levels of disability benefits from the perspective of beneficiaries.

Conclusion

This article was not intended to tout the capability approach as a superior model for investigating and understanding disability. However, the capability approach does contribute a new and useful perspective on disability by differentiating two levels of the problem: the capability level and the functioning level. The capability framework is also useful for understanding the possible causes of disability. This approach allows re-

searchers to analyze how disability results from the interaction among the individual's personal characteristics, available resources, and environment (physical, social, economic, political). In particular, it brings out the possibility that the economic resources of the person with an impairment and his or her economic environment can be disabling. Among the existing models of disability reviewed in this article, the ICF comes closest to understanding disability as promulgated under the capability approach. The ICF differentiates capability and functioning levels in its classification system of disability. In its implementation so far, however, the ICF has primarily been a health classification that does not take into account the individual and socioeconomic factors that may be disabling.

The capability approach also has important implications for the analysis of employment issues for persons with disabilities as well as for the analysis of the economic sources and costs of disability. Current estimates of the standard of living of households with disabilities may underestimate the extent of poverty if such costs are significant.

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NOTES

1. A long list of definitions of concepts relevant to disability is available in Altman (2001). A broad coverage of disability models is available in Altman (2001), Pfeiffer (2001), Williams (2001), and Campbell Brown (2001).
2. For instance, Sen (1985, p.5, p.10; 1992, p.107; 1999, p.74; 88; 2001, p.54, 2002; p. 663)).
3. Elsewhere Sen writes that (1999, p. 88): "Handicaps, such as age or disability or illness, reduce one's ability to earn an income. But they also make it harder to convert income into capability, since an older, or more disabled, or more seriously ill person may need more income (for assistance, for prosthesis, for treatment) to achieve the same functionings (even when that achievement is at all possible). This entails that "real poverty" (in terms of capability deprivation) may be, in a significant sense, more intense than what appears in the income space."
4. "Persons with disabilities" below include persons with limitations at work or in a major life activity and/or persons who receive disability benefits in consistency with the term's usage in the employment research literature.
5. This point was also made by Welch (2002) who applied both Nussbaum and Sen's versions of the capabilities approach to the joint analysis of poverty, gender discrimination and disability.
6. E.g., Elwan (1999), Yeo and Moore (2003), Shirley (1983) and DFID (2000).
7. E.g., Mullahy and Wolfe (2001) and Fujiura (2000) in the U.S, for a review on poverty and disability in developing countries, see Elwan (1999).

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