

*Women's Interlaced Freedoms: A Framework Linking Microcredit Participation and Health**

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Abstract Improving the health of poor women is a public health priority worldwide. In this paper, we focus on microcredit — an intervention not explicitly designed to have an impact on health. Microcredit programmes aim to provide the poor with access to credit, thereby improving their opportunities to engage in productive activities. This paper presents a conceptual framework, inspired by Sen's capability approach, Michael Grossman's health production theory, and models of the determinants and pathways of population health, to assess how participation in microcredit can lead to improvement in the health of poor women. We explore how women's health capabilities (i.e. opportunities to achieve good health), and ultimately their health functionings (e.g. being healthy), can be expanded via key determinants of population health, such as access to resources and autonomy.

Key words: Population health, Poor women, Capability approach, Health production, Microcredit

These instrumental freedoms directly enhance the capabilities of people, but they also supplement one another, and can furthermore reinforce one another. These interlinkages are particularly important to seize in considering development policies. (Sen, 1999, p. 40)

Introduction

Improving the health of the poor is a public health priority worldwide. This is particularly true in low-income countries, where the burden of

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disease is heaviest (World Bank, 1993). Women, who experience greater rates and depths of poverty, are especially vulnerable to poor health (United Nations Development Programme, 1995; Bangser, 2002). In the South, there are continuing efforts to ameliorate population health through interventions aimed at breaking what is often labelled the 'cycle of poverty and ill-health'.

The relationship between poverty and ill-health has been characterized as synergistic and bidirectional (Das Gupta and Chen, 1996; Judge and Patterson, 2001; Wagstaff, 2001). Poverty limits the capacities to produce health, and ill-health leads to further impoverishment, diminishing the potential of individuals and households to improve their economic well-being (Over *et al.*, 1992; Krishnan, 1999; Judge and Patterson, 2001). This interconnectedness of poverty and health has led to the promotion of pro-poor health strategies, which focus on and provide benefits for the poor. Examples include targeting health resources to illnesses that disproportionately affect the poor, investing in health services used primarily by the poor, and providing mechanisms to protect poor households from health shocks (Bloom and Lucas, 2000).

Alternatively, poverty alleviation strategies (PASs), such as microcredit programmes, may lead to health benefits (Feurestein, 1997). There is increasing recognition that poor health is a dimension of poverty; therefore, one potential result of poverty reduction is improvement in the health of the poor (Wagstaff, 2001). PASs can adopt various forms. Debra Lipson's (1998) review of potentially pro-health PASs included community and micro-enterprise economic development, agriculture and food policies, education policies, macroeconomic policies, and environment or infrastructure investments to improve the supply of safe water and basic sanitation. In this paper, we focus on microcredit — an intervention not explicitly designed to have an impact on health.

This paper presents a conceptual framework, inspired by Sen's capability approach, to assess how participation in microcredit programmes can lead to improvement in the health of poor women. (It should be noted that the full breadth of the interactions between poverty and ill-health in terms of capability deprivations is beyond the scope of this paper.) In this paper, we adopt a woman-centred perspective, examining women's participation in microcredit programmes and their capacities to influence their own health (Doyal, 1995). A gender perspective, which is beyond the scope of this paper, would also be illuminating at both the household level (analysing the impact of women's microcredit participation on their relationships with male and other female household members) and the community level (in communities where there are both female and male microcredit groups). We explore how women's health capabilities (i.e. opportunities to achieve good health), and ultimately their health functionings (e.g. being healthy), can be expanded via key determinants of population health, such as access to resources and enhanced autonomy in areas such as decision-making, social mobility, and

control over finances. Significant health externalities, or unintended benefits, produced through participation in a PAS would support the notion that “freedoms of different kinds tend to help the enhancement and consolidation of one another” (Drèze and Sen, 2002, p. 3).

Why explore microcredit participation and health?

Microcredit programmes, with their antecedents in nineteenth-century Europe, acquired popularity in the developing world with the success of programmes implemented in the 1970s such as the Badan Kredit Kecamatan in Indonesia, the Self-Employed Women's Association in India, and the Grameen Bank in Bangladesh (Hollis and Sweetman, 1998; Berger, 1989). Modern microcredit programmes arose to address challenges faced by the poor in acquiring credit without the necessary collateral, usually land, required by formal lending institutions. Promoted by governments, development agencies, and non-governmental organizations, microcredit programmes aim to provide the poor with access to credit, thereby improving their opportunities to engage in productive activities. Montgomery provides a succinct description of how microcredit programmes work:

Solidarity group lending schemes involve the formation of groups in which some or all members in the group are jointly liable for each individual's loans, thereby creating an alternative to conventional loan requirements (which poor people can rarely fulfil). From the lenders' perspective such joint liability lending enables a transfer of default risks from the institution to the borrower, and can reduce the transaction costs of providing a larger number of small loans (by concentrating clientele in groups, at regular village based meetings, rather than dealing with individual borrowers at different times). (Montgomery, 1996, p. 290)

Microcredit has been called “the” significant intervention in the fight against poverty for the twenty-first century (Rahman, 1998, p. 80). This is reflected in the growing prevalence of microcredit programmes, with numerous schemes sprouting up in Asia, Africa, Latin America and the Caribbean, and the Middle East (see Table 1). The thrust of the movement has been especially to engage poor women, not only to alleviate poverty, but also to increase their access to resources and enhance their power in household decision-making (Sundram, 2001). By the year 2000, among those programmes reporting to the Microcredit Summit, 44% of their participants were classified as being among the poorest women (see Table 1).

Microcredit programmes share a common objective — to reduce poverty through access to credit — and shared principles, such as group solidarity, yet vary in their design according to their particular context

Table 1. Microcredit programmes, and number of clients self-reported for the developing world, 1999

Region	Number of programmes reporting	Number of clients reported	% of total clients reported as 'poorest' ^a	% of total clients reported as 'poorest' women ^a
Africa	455	3 833 565	68	40
Asia	352	18 427 125	57	45
Latin America and Caribbean	152	1 109 708	48	32
Middle East	16	46 925	61	33
Developing world total	975	23 417 323	58	44

Data source: 2000 Micro-credit Summit Campaign Report.

^aAuthor's calculations.

(Morduch, 2000).¹ In India, for example, self-help groups were launched by the National Bank for Agriculture and Rural Development, with the support of non-governmental organizations, as an alternative to previous supply-led, top-down PASs. The self-help group movement in India adopted the position that the poor were agents, and that group members themselves should decide loaning criteria and identify their own projects and activities (Cagatay, 1998).

Among those studying the various PASs, there has been particular interest in measuring the potential health impacts of microcredit (Feurestein, 1997; Fisher *et al.*, 2001), supported by fragments of empirical evidence (Amin and Li, 1997; Mushtaque *et al.*, 2001). The interest in microcredit can be attributed to its importance as a PAS in numerous countries, and to its disproportionate impact on factors that can improve the health of the poor, such as access to food and better living conditions (Lipson, 1998). To properly assess these health impacts, we need to understand the explicit processes and mechanisms involved, using a solid theoretical foundation.

This paper begins with an outline of our conceptual foundations: the capability approach, health production theory, and models of the determinants and pathways of population health. In the following section, we describe several pathways linking microcredit participation and health. We then present the components and processes of the framework, integrating health capabilities, health production theory, and the pathways to health. Illustrative examples are drawn from the literature. Following this, we explore how duration of participation can influence health outcomes, we discuss some considerations and caveats related to the framework, and we offer our concluding remarks.

Linking microcredit and health production

The capability approach

The capability approach has broad implications, and can be used for a plurality of purposes across disciplines (Sen, 1993, p. 49). Robeyns writes

that the capability approach should be “a mode of thinking instead of a fixed formula”, and that the lack of specificity of Sen’s framework requires additional theorizing, with respect to choice, within a subdiscipline (Robeyns, 2000, p.19).

A capability approach to health was first mentioned by Sen (2002a), and then discussed in greater depth by Jennifer Prah Ruger (1998, 2004a,b). Both Sen and Ruger underscore the importance of health as a human capability. Martha Nussbaum² also considers health to be a valuable capability; she includes “bodily health” in her list of central human capabilities (Nussbaum, 2000). A capability approach distinguishes between health functionings and the capacity to achieve good health. Health functionings are what Sen refers to as the “beings” and “doings”, such as being free from malaria or other avoidable illnesses (Sen, 1992). Health capability is “an individual’s opportunity to achieve good health and thus to be free from escapable morbidity and preventable mortality” (Ruger, 2004a, p. 1076). Capabilities are freedoms, or the real opportunities of individuals to lead the lives that they value (Sen, 1992, 1999). Sen differentiates achievements in well-being from achievements related to agency. Agency, a woman’s ability to define and pursue her own valued goals, is also relevant in the context of health. “Enabling individuals to exercise their agency — both individually and collectively — enables them to prioritise and decide which health domains they value most (eg, to trade-off quality and quantity of life) and to choose what health services they would like to consume (eg, making choices among treatment options)” (Ruger, 2004a, p. 1076).

The capability approach allows for an evaluation of capabilities, functionings, or both, although functionings are easier to measure than capabilities (Robeyns, 2000). Robeyns further writes that “there are cases and situations where it makes more sense to investigate people’s achieved functionings directly, instead of evaluating their capabilities” (Robeyns, 2005, p. 101). In the case of health, Sen considers a health achievement to be suggestive of a person’s capability because “in most situations, health achievement tends to be a good guide to the underlying capabilities, since we tend to give priority to good health when we have the real opportunity to choose” (Sen, 2002a, p. 660). To strengthen this notion that when a woman has the choice she will choose *greater* levels of health, we turn to a theory that specifically addresses the production of health.

Health production theory

Modelling health production is most often associated with the work of Michael Grossman; to understand the demand for health, he based his model on the theory of human capital (Grossman, 1972).³ This theory is based on a health production function, which “shows how much health can be obtained for a given quantity of health input, given technical knowledge” (McGuire *et al.*, 1988, p. 130). According to Grossman, health

is a 'stock', and a woman will attempt to maximize her health stock by exploiting opportunities to transform inputs into health, given the constraints in her life, such as budgetary limitations. Over time, this stock will depreciate, especially during certain periods of the lifecycle. A person can, however, choose to increase her health stock, through investing in inputs that include time, medical care, diet, housing, education, and so on.

Grossman (1972) views health as a consumption good as well as an investment good. The former suggests there is a demand for health *per se* — in other words, it is desirable because it makes people feel better — while the latter indicates that health is sought after for its capacity to contribute to other desirable functions, such as being able to work to earn money, or to participate in enjoyable activities. In reviewing Grossman's model, Leibowitz (2004) concluded that because he emphasized health as an investment good, his model goes beyond addressing the demand for medical care, to examining how individuals could produce health through investing time and non-medical goods to improve their health stock. Grossman's work focused on a few health inputs, notably education and income. These factors, while important, do not fully explain variations in population health. Therefore, we turn our attention to the larger body of work on the determinants of health.

Determinants and pathways

There are diverse models of the determinants of population health. One common thread among them is a focus on how multiple factors interact and influence health through various mechanisms. The *Lalonde Report*, a watershed publication in the field of public health, identified four main categories of determinants: environment, human biology, lifestyle, and health care organization (Lalonde, 1974). Building on this report, authors such as Robert Evans and Greg Stoddard (1994), Julio Frenk *et al.* (1991), and Nancy Moss (2002) have devised frameworks depicting these multiple factors and interrelated determinations.

The framework developed by Frenk *et al.* (1991) specifies three broad levels of determinants: basic (population, environment, social organization, biological risks), structural (level of wealth, social stratification, occupational structure, redistributive mechanisms), and proximate (working conditions, living conditions, lifestyles, access to health care). This latter category, equivalent to Grossman's health inputs, is of particular interest from an interventionist perspective. Proximate determinants directly influence individual health outcomes, and are, in turn, influenced by underlying or socioeconomic determinants of health, such as access to resources, or women's power in decision-making (Wagstaff, 2001). Finally, there are psychosocial determinants of health, such as social networks and psychological coping skills (Marmot and Wilkinson, 1999). These factors improve individual health outcomes by "mediating the effects of social structural factors" (Martikainen *et al.*, 2002, p. 1091).

The influences of the various determinants of health can be integrated into causal sequences, or pathways. These pathways can help to elucidate why the poor have worse health or, alternatively, how the poor can escape ill health. We envision four main pathways that link microcredit participation and health: economic, social, psychological, and political. Each is composed of distinct mechanisms, described under their respective pathways. The mechanisms influence health via two channels, which we refer to as the 'production' channel and the 'conversion' channel.

The *production channel* affects those determinants of health that act as inputs into health production. These are: (i) diet and nutrition, (ii) environmental risks, (iii) health behaviours, (iv) psychological stress, and (v) health services. Diet and nutrition include dimensions of both quantity (energy intake) and quality (nutritional value); poor quality diet and nutrition can lead to malnourishment, obesity, or vitamin deficiencies. Environmental risks are of domestic (e.g. poor housing), occupational (e.g. pesticides), or external (e.g. smog) origin (Frenk *et al.*, 1991). Exposure to such risks can alter health status in different ways, but individuals are especially prone to infectious illnesses such as tuberculosis, chronic illnesses such as asthma or rheumatism, cancer, and other illnesses. Health-promoting and health-damaging behaviours are key influences on health outcomes. Health-promoting activities include good hygiene, healthy eating patterns, physical activity, and safe practices, such as the proper storage of poisons. Health-damaging practices include smoking, abuse of alcohol and other drugs, sedentary lifestyles, and engaging in unsafe sex.

There is an abundance of evidence linking psychological stress or, more precisely, the perception of stress, and ill health (O'Dea and Daniel, 2001). Without adequate coping resources to buffer stressful events, stress can have adverse effects on the body through neuro-endocrine mechanisms. Finally, utilization of preventive and curative health services will help protect or restore health. This requires that services be acceptable, accessible, affordable, and of good quality (Haddad and Mohindra, 2002). Poor quality services contribute to poor health both directly, through unsafe practices of health care workers (such as reusing syringes), and indirectly, by deterring people from using the services. Unsafe practices on the part of patients, such as purchasing medicines from an unlicensed seller, can also be harmful. In addition, insufficient sharing of information among health care users can prevent ill persons from seeking care or engaging in prevention programmes. Health care utilization can help to prevent or cure illness, reduce severity of various conditions, and improve survival rates.

The *conversion channel* acts upon health determinants that enable a woman to convert existing or available health inputs into good health. These include various abilities or skills: (i) autonomy, (ii) coping skills, (iii) awareness, (iv) self-management of illness, and (v) action space. Autonomy

is defined as the control women have over their own lives (Jejeebhoy and Sathar, 2001), and has several dimensions: social (social mobility), economic (control over finances), and political (decision-making powers). Autonomy has demonstrated impacts on a woman's health by, for example, enabling her to manage her own fertility or meet her own health care needs (Schuler and Hashemi, 1994; Nanda, 1999; Bloom *et al.*, 2001; Moss, 2002). Autonomy was selected in lieu of similar concepts because it is a relatively unambiguous and discrete concept, and is distinct from the central elements of the capability framework (i.e. opportunities, choice, agency).⁴

Adequate skills to cope with stress can protect a woman from adverse health consequences (O'Dea and Daniel, 2001). The specific skills utilized will vary across cultures and social groups. Awareness can lead to improved nutrition, increase the adoption of healthy habits, encourage proper health-seeking behaviour, and reduce exposure to health risks. A person's ability to self-manage illnesses with known causes and treatments, such as diabetes, can reduce the severity or progression of illness. Finally, there is the concept of action space that has been expanded by Joseph and Poyner (1982). A woman's action space includes her characteristics, such as age, income, and social mobility, as well as the extent of her knowledge and ability to attribute a value to a good or service (associated perceptual value). Enlarging a woman's action space would optimize information and encourage her to consider a greater array of possibilities that might benefit her health.

The economic pathway

The economic pathway is the most straightforward, due to the close link between wealth and health, and because the primary objective of microcredit is to reduce poverty. Key mechanisms include increased access to economic resources, better access to collective resources or public goods and services, and overall improvements in material conditions (Lynch *et al.*, 2000). These mechanisms can improve health via the production channel through two main actions: maintaining and protecting health, and restoring health.

More economic resources or access to a food distribution programme can increase the quantity and quality of food available. Greater income can support healthy food choices, making it possible to purchase non-staple foods, and to reduce consumption of those unhealthy foods, high in fat and refined sugar, which are often cheap and fast meals. Improvements in material conditions, access to safe drinking water, good sanitation, and adequate housing reduce exposure to health risks (Judge and Patterson, 2001; Deaton, 2002). With rising income, health-promoting and hygienic practices are increasingly adopted (Wagstaff, 2001; Deaton, 2002). Also, income is inversely related to health-damaging behaviours. An increase in economic resources can help reduce exposure to major sources of stress,

such as financial insecurity and associated household tensions. Higher income also reduces barriers to accessing quality health care (Wagstaff, 2001). In poor countries, where most of the population is uninsured, access to health care is constrained by households' ability to pay for services.

The mechanisms in the economic pathway can also enhance the determinants of health via the conversion channel, especially if mediated by education. Greater access to economic resources can enhance autonomy and awareness, and can help expand one's action space. More economic resources can also improve a woman's ability to manage her own illness by enabling her to purchase the necessary drugs and health technology. In practice, access to credit does not necessarily translate into greater access to resources through higher income or more financial assets. Some authors have pointed out that the poor are sometimes compelled to use credit for consumption purposes, and these authors have made suggestions for redesigning microcredit programmes to serve these needs (Montgomery, 1996; Mosley and Hulme, 1998).

The social pathway

The conceptual model linking social relationships (or networks) and health, developed by Berkman and Glass (2000), provides a useful guide for discussing the social pathway. Social networks can influence health through three main mechanisms: social support, social norms, and social engagement.⁵ The social pathway operates by maintaining and protecting health.

First, social networks influence health by providing social support, which can take several forms: emotional support (love, caring, sympathy), instrumental support (assistance with tangible needs), appraisal (help in decision-making, giving appropriate feedback), or informational support (advice or particular information). Social support can have wide-ranging effects. Instrumental and informational support tends to influence determinants via the production channel (e.g. provision of extra food stocks during crisis, advice on a particular health problem), while emotional support and appraisal will tend to influence the conversion channel (e.g. emotional support following the death of a spouse).

The second mechanism involves changing norms and attitudes. Via the production channel, social norms can influence health-related behaviours. A change in norms, such as non-tolerance of wife-beating, can reduce the incidence of domestic violence. Via the conversion channel, social norms can enhance the autonomy of women through greater acceptance of their mobility. In general, norms may be influenced by making the lives of women more public.

This leads us to the third mechanism, increasing women's social engagement and social participation. Participating in social events can

increase “opportunities for companionship and sociability” and “define and reinforce meaningful social roles including parental, familial, occupational, and community roles, which in turn provide a sense of value, belonging, and attachment” (Berkman and Glass, 2000, p. 147). Social participation can affect the production channel by protecting against exclusion from public interventions and services, such as health care. Greater social participation can also increase autonomy and awareness, and enhance coping skills.

There are also possible negative social relationships, or unsupportive social ties, that would not be health promoting. Microcredit programmes sensitive to such issues can reduce social conflicts by, for example, engaging field staff to mediate group conflicts or, in more extreme situations, facilitating the transfer of a woman to another group.

The psychological pathway

Participation in a microcredit programme provides opportunities for women to engage in activities or gather information that may help them develop their ‘self’. The psychological pathway includes two key mechanisms: Bandura’s concept of *self-efficacy*, and Antonovsky’s concept of a *sense of coherence*. Similar to the social pathway, the key action of the psychological pathway is through the promotion and maintenance of health.

Acquiring skills such as financial management or income-generation abilities can increase a woman’s self-efficacy, which is her belief in her ability to produce a desired effect (Bandura, 1977, 1994). Individuals with a strong sense of self-efficacy tend to approach challenges from a point of view of mastery rather than fear; they set high goals and commit to them. Self-efficacy can be developed through effective performances, leading to experiences of mastery. Self-efficacy influences the production channel by increasing the adoption of healthier behaviours and reducing exposure to health risks. Self-efficacy can also increase a woman’s coping skills and her abilities for self-management of illness.

Life experiences acquired through microcredit participation may contribute to the development of a woman’s sense of coherence, a global concept that includes three components: (i) comprehensibility, the extent to which a woman can cognitively make sense of her external environment; (ii) manageability, the extent to which a woman perceives that her available resources can be used to control the demands of her environment; and (iii) meaningfulness, the extent to which a woman’s life makes emotional sense (Antonovsky, 1987). A sense of coherence can be strengthened through generalized resistance resources, such as material possessions, knowledge, religion, and philosophy. Antonovsky’s work with Israeli concentration camp survivors showed that it was not the exposure to external

events *per se*, but a weak sense of coherence to address these events that led to poorer health status. A more developed sense of coherence operates via the conversion channel by increasing the ability to cope with stress.

The political pathway

The key mechanism in the political pathway is 'voice', which can influence public policies and interventions that have an impact on women's health. Due to a persistent male bias in policy-making and in the shaping of health interventions, greater female voice in these processes could ensure more appropriate health care and health promotion programmes (Sen *et al.*, 2002). Acquiring a greater voice has been identified as an important route to gaining power and access to resources, and can be achieved via two main routes:

In principle, this problem of voicelessness can be overcome in two distinct ways. One is *assertion* (or, more precisely, self assertion) of the underprivileged through political organization. The other is *solidarity* with the underprivileged on the part of other members of the society, whose interests and commitments are broadly linked, and who are often better placed to advance the cause of the disadvantaged by virtue of their own privileges. (Drèze and Sen, 2002, p. 29; original emphasis)

In a women-only microcredit programme, engaging in financial activities provides a unique space, in which female solidarity is created through promoting shared visions and goals and combining collective strengths. Group solidarity to achieve financial goals does not necessarily translate into social transformation (Mayoux, 1999; Rankin, 2002). There is a difference between solidarity used for instrumental purposes, such as guaranteeing loans, and solidarity that can lead to consciousness-raising and empowerment. The term solidarity therefore needs to be qualified. "Solidarity among women can, however, serve as a powerful tool for progressive social change, *as long as it fosters critiques of dominant cultural ideologies*" (Rankin, 2002, p. 18; emphasis added). For example, in India's state of Tamil Nadu, self-help groups organized themselves to champion the rights of the girl child by campaigning against infanticide (Kannan, 2004). Gender-progressive microcredit programmes require complementary services that specifically address gender issues and larger social mobilization efforts (Amin *et al.*, 1998; Mayoux, 1999). Martha Nussbaum's work supports the promotion of women's collectives as an important route to gaining political rights linked to central human capabilities (Nussbaum, 2000). Participation in groups that are exclusively female can promote activities for the benefit of women, as well as offer a secure base from which to participate in such activities.

Pulling it all together: capability, health production, and pathways

General process: production and conversion

The general process linking microcredit participation and women's health is situated within the realm of production. The mechanisms of the pathways described earlier are the outputs of microcredit participation (see Fig. 1). These mechanisms can lead to the proximate determinants of health via the production channel or the conversion channel. The proximate determinants may then be converted into health capability, and ultimately health functionings; this is a production function.

Among the determinants that could plausibly aid in the conversion process, autonomy has received the most attention in studies on microcredit. Microcredit participation is associated with higher scores on autonomy or empowerment indexes, and with the adoption of particular practices, such as women secretly saving their earnings, indicating greater levels of autonomy⁶ (Schuler and Hashemi, 1994; Schuler *et al.*, 1996; Amin *et al.*, 1998; Kabeer, 2000). Autonomy leads to a transformative action, by increasing power and control over the use of resources. Autonomy can increase a woman's efficiency in producing health. The other determinants — awareness, ability to cope, self-management of illness, action space — can be expected to operate in a similar fashion.

Health capabilities operate at two levels: as outputs of the proximate determinants of health, and as inputs into health functionings (see Fig. 1). A health capability expands by increasing health inputs and enhancing the conversion factors. For example, the expansion of a woman's action space will enable her to envision a greater range of possibilities that would direct her efforts towards developing more hygienic practices or reduce potential

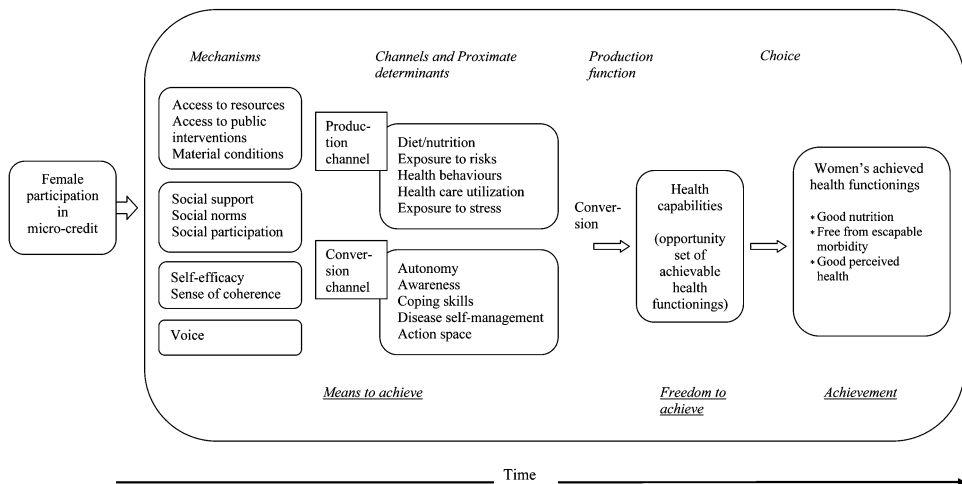


FIGURE 1. Conceptual framework adapted from Robeyns (2005).

health risks in her environment. Greater capacity in self-managing illnesses will improve a woman's efficiency in utilizing health care services. More awareness can ensure a woman's healthy food selections have optimal nutritional value, among other benefits.

Women will choose from their set of opportunities to achieve health according to their own values and ideas of living a good life. According to Sen (2002a), a woman will generally choose good health. The specific manner in which she chooses to achieve health, however, may vary (e.g. selecting ayurvedic or allopathic medicine). There may also be certain cases when a woman may not choose to pursue optimal health, an issue we examine next.

Achieved health functionings

Achieved health functionings, depicted in Figure 1, include expert-defined health functionings (e.g. absence of vitamin deficiency, absence of diagnosed morbidity) and self-assessed health functionings (e.g. perceived good health, absence of self-reported morbidity). There is some concern surrounding the use of self-assessed measures of health; a perception bias may arise among individuals who lack the informational base to assess their own health status, and therefore do not report existing health problems (Sen, 1994, 2002b). Self-assessed health status should not, however, be disregarded. Health is a multidimensional construct that can be viewed through multiple lenses. Self-assessed measures address one limited, but relevant, dimension of health. These measures recognize the social context in which humans live, and are "more concerned with the *consequences* of disease pathology than with their signs and symptoms *per se*" (Davies, 1996, p. 97; original emphasis). This self-assessment approach focuses on the person's inability to walk, earn a living, or engage in some social activity, instead of on the underlying pathology of a particular disease. Sen himself recognizes the need to adopt both expert-defined and self-assessed perspectives: "both perspectives are important, and it is a question of taking a broad enough approach to have an informationally adequate framework ... I am not advocating a return to exclusive reliance on 'expert judgement', ignoring the ideas and feelings of the person most directly involved, to wit, the patient" (Sen, 2002c, p. 70). A number of social factors to consider when measuring self-assessed health have been identified, such as income, education, access to public health facilities, and perceived social stigma (Davies, 1996; Sen, 2002c).

While studies have generally focused on the health achievements of the children of mothers who participate in microcredit, there are also a few studies that have examined women's health achievements. One recent study in Ethiopia examined the link between women's microcredit participation and the impact on their nutritional status (Doocy *et al.*, 2005). This study had three comparison groups: established clients (completed two or more loan cycles), incoming clients (completed one

loan cycle or less), and a control group (eligible to participate but did not). There were two study sites, one of which had been more affected by droughts and had higher levels of food insecurity. There were no significant findings for the site less affected by drought. The picture, however, is different for the more deprived site; a positive relationship was found between participation and nutritional status. Established clients were 3.2% less likely to be malnourished than the controls. The nutritional benefits were found among participants living in the more deprived area, emphasizing the importance of the local context. An important finding in this study is that participants who had completed two or more loan cycles achieved better nutritional levels, whereas new clients had not yet shown improvement compared with the controls. The duration of participation, therefore, appears to matter — an issue we explore in the following section.

There has been important work on domestic violence and women's participation in microcredit. Structured surveys and ethnographic research in Bangladesh found that participation in women's microcredit could help to reduce violence against women by making women's lives more public (Schuler *et al.*, 1996). Women's access to credit and income generation may create a positive role for women — if not by their income, then by the recognized contributions they make to household welfare. For example, one of the women responded after joining the Grameen Bank:

In the past my father-in-law would never stop my husband from beating me. But after I joined Grameen Bank he said to my husband, "You had better stop beating and scolding your wife. Now she has contact with many people in society. She brings you loans from Grameen Bank. If you want to you can start a business with the money she brings!" (Schuler *et al.*, 1996, p. 1738)

This is not to say there is a linear relationship between participation in microcredit and reduced violence against women. The same study found that the village where women contributed the most to household earning also had the highest prevalence of beatings. Other researchers noted that women who join microcredit programmes might experience an initial period of heightened abuse when they join, but that violence is progressively reduced over time (Mushtaque *et al.*, 2001). Earning independent incomes, increased social mobility, and autonomy were seen as causes of conflicts. Why then would a woman continue to participate if her well-being was jeopardized? Agency is a separate yet overlapping aspect of women's well-being (Sen, 1999). Women with opportunities to make their own choices in the pursuit of their well-being may seek a better deal. Schuler and her colleagues noted that "The most empowered women typically emerge from a period of conflict with a new definition of their roles and status in the household" (Schuler *et al.*, 1996, p. 1739), which is illustrated by the following response:

My husband used to beat me up and take my money. Now he can beat me a thousand times and I won't give him my money. I tell him, "you had better not beat me too much — I can live without you!" (Schuler *et al.*, 1996, p. 1738)

These findings illustrate the distinction between achievements in agency and in well-being. Some women exposed themselves to domestic violence through their continued participation in a programme, with potential negative health consequences. However, because the women *valued* participating in such a programme, their agency achievements were heightened. This is a critical point; traditionally, public health activity has tended to focus exclusively on improving health outcomes, disregarding agency and women's own interests.

Duration of participation: same inputs, more outputs

Duration of participation can influence the process of health production. The longer a woman has participated in microcredit, the greater her propensity to achieve good health. There are three possible processes.

First, health achievements will accumulate over time (Grossman, 1972). Anand and Chen (1996) described the accumulation process through a framework that considered health in terms of 'stocks', and health inputs as 'flows'. Depreciation of health stock may occur if there is a disruption of flows, such as during times of economic crisis. However, individuals can draw upon health stock reserves they have accumulated, delaying impacts on their health status. The authors further claimed that this process also functions in the opposite direction. "Just as it might take time to draw down an individual's health stock, *it takes time to build it up*" (Anand and Chen, 1996, p. 19; emphasis added). The time required to draw down a given quantity of health stock, however, will be relatively shorter than the time needed to build it up. Also, the time required for building up or drawing down a given quantity of health stock varies according to the person's health condition, age, and fragility.

Second, the longer a woman participates in microcredit, the greater her propensity to obtain different kinds of benefits. These benefits could be economic (more or larger loans), social (expansion of her social network), political (greater voice), or psychological (greater self-efficacy).

Third, increased duration of participation may provide time for the female participant and her household members to adjust to her participation, and for her to take better advantage of the opportunities of membership. When a woman engages in activities outside of the household, concerns and tensions sometimes arise that would reduce the potential benefits of her participation. These tensions, however, often dissipate after the husband, and other household members, witness the benefits of women's participation (Amin *et al.*, 1998).

The importance of the duration of participation is illustrated in a study in Bangladesh that examined women's participation in microcredit groups and their awareness regarding pre-natal and postnatal care (Hadi, 2001). The author observed that not only did participants of microcredit demonstrate a greater awareness of their reproductive health compared with women who did not participate, but women who participated for longer periods of time (five years or more) had developed a greater awareness compared with members who had participated for a shorter duration (less than five years) (see Table 2).

In summary, over time we would expect the health achievements of women participating in microcredit programmes to increase, although the specific inputs feeding into the health production process may remain constant.

Table 2. Adjusted odds ratios^a for prenatal care knowledge among Bangladeshi women, by microcredit participation status

Membership status	Prenatal care		
	Tetanus vaccine ^b	Vitamin supplement ^c	Medical check-up ^d
Non-member	1.00	1.00	1.00
Member (less than five years)	2.15**	2.19***	2.59
Member (five years or more)	2.39**	3.79**	4.88***
Not eligible	1.86*	2.69*	2.28

Data source: Hadi (2001).

^aOdds ratios were adjusted for women's age, education, exposure to mass media, husband's occupation, and ownership of land.

^bAwareness about the need for tetanus vaccination during pregnancy.

^cKnowledge about iron/vitamin supplementation.

^dAbility to mention the need for routine prenatal health check-ups.

* $p < 0.01$, ** $p < 0.05$, *** $p < 0.10$.

Further considerations

There are two further considerations with respect to the framework developed in this paper. First, the microcredit programme should be effective. An effective programme begins with an appropriate design (efficacy), based on several criteria, including an adequate underlying theory, sufficient resources, and appropriate means to meeting its objectives (Contandriopoulos *et al.*, 1991). A good design is necessary but not sufficient; beyond its potential effectiveness, a programme must be effective in practice. The degree to which a microcredit programme is successfully implemented will influence the extent to which its intended outcomes are achieved, and ultimately, its effectiveness (Patton, 1997). Implementation is affected by a number of factors, such as the quantity and quality of programme staff. In addition, the environment and context in which the programme is being implemented can interact with the programme in various ways (Contandriopoulos *et al.*, 1991). The

importance of context was demonstrated in the results of the Ethiopia study described earlier, in which female microcredit participants who achieved better nutritional status than non-participants lived in the relatively more deprived area.

Undesired effects of microcredit programmes have been identified that can be attributed to poor design or inadequate implementation, such as abuse of male staff towards female participants, excessive work burdens of participants, stress related to peer pressure in repaying loans, and the male appropriation of loans (Goetz and Gupta, 1996; Montgomery, 1996; Rahman, 1998; Mayoux, 1999). Some authors have proposed improvements in the design of microcredit programmes, including adopting more flexible repayment schemes, increasing self-management of groups, and enlarging women's access to credit and income-generating activities relative to men (Montgomery, 1996; Agarwal, 1997; Mosley and Hulme, 1998).

Second, we did not address the household production of health (Berman *et al.*, 1994). Women's participation in microcredit can benefit the health of other household members; studies have demonstrated that a mother's participation has positive impacts on child health and survival (Amin and Li, 1997; Mushtaque *et al.*, 2001; Bhuiya and Chowdhury, 2002). In addition, women's participation can improve health at the community level, progressing on broader social goals, such as lowering fertility rates (Drèze and Sen, 2002). As a beneficiary of the programme, a woman might benefit not only *directly* from her participation as alluded to in this paper, but also *indirectly* through her contributions to the health of the household or the community.

Concluding remarks

We propose that assessing health impacts of poverty alleviation strategies is a useful approach to improving the health of the poor. As a first step, this paper offers a framework integrating Grossman's health production model into Sen's broader capability approach. Sen recognized the close connections between the accumulation of human capital and the expansion of human capability. "If a person can become more productive in making commodities through better education, better health and so on, it is not unnatural to expect that she can also directly achieve more — and have the freedom to achieve more — in leading her life" (Sen, 1997, p.1959). Applying this perspective specifically to health results in a conceptual framework that links woman's participation in microcredit and health, and which considers women's own choices and values.

Microcredit is not a panacea for alleviating poverty, nor does it address all issues regarding the empowerment of women (Berger, 1989; Mayoux, 1999; Rankin, 2002). Nor are microcredit programmes a magic bullet for reducing illness among poorer women; rather, they are important complements to health promotion and prevention

programmes. Microcredit programmes are promising interventions with potentially far-reaching impacts, including the expansion of women's health capabilities. Public health researchers and practitioners should not exclude the assessment of interventions outside of the health sector as a means to improving population health.

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Notes

- 1 See Berger (1989) for a typology of different credit programmes, Mayoux (1999) for a distinction among different paradigms, and Montgomery (1996) for an example of a comparison of two programmes, BRAC in Bangladesh and SANASA in Sri Lanka.
- 2 Martha Nussbaum's version of the capability approach is not discussed in this paper, although it also has important implications for health. The Aristotelian roots of Nussbaum's capability approach are particularly attractive for health scholars (Ruger, 1998).
- 3 Sen (1997, 1999) has written on the connections between human capital and human capability. He writes that these perspectives are complementary, both centralizing upon human capacities and achievements. The human capital perspective, however, is 'narrower' than the capability perspective, because the primary focus is on increasing production, whereas the capability approach emphasizes substantive freedom and expanding real choices. Because humans are "not merely means of production, but also the end of the exercise", the human capability approach encompasses a wider lens for viewing development (Sen, 1999, p. 296).
- 4 Some concepts, notably empowerment and autonomy, are often used interchangeably in the literature, leading to confusion in terminology. Definitions of empowerment vary across disciplines, and among authors within similar disciplines (Wallerstein, 1992; Kabeer, 1999). Naila Kabeer (1999) refers to the "fuzziness" of empowerment as an appealing trait for feminists. Her framework for empowerment focuses on the expansion of choice, resources, agency, and achievements. Bargaining power could arguably be substituted for autonomy (Agarwal, 1997).
- 5 The model included a fourth channel, access to resources and material goods, but the authors admit that a lack of research leads them to merely speculate; we do not include this channel in our framework.
- 6 Demonstrating an empirical link between participation in microcredit and female autonomy is difficult, due to challenges in defining and measuring autonomy, particularly in different cultural contexts. For an excellent review see Kabeer (2000), who makes several points: (1) conceptualizing empowerment requires an understanding of power relations between men and women grounded in their particular culture, (2) empowerment is a complex phenomenon even within the same context,

(3) empowerment should not be dichotomized, but rather viewed as a “expansion in the range of potential choices”, (4) there needs to be a distinction between views of how feminists or development academics see change, and how the women themselves view their own empowerment, and (5) “women” is not a homogeneous group, and therefore different women will respond in different ways to similar stimuli.

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