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<http://dx.doi.org/10.1016/j.worlddev.2013.02.005>

# Frustrated Freedom: The Effects of Agency and Wealth on Wellbeing in Rural Mozambique

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**Summary.** — In the capability approach to poverty, wellbeing is threatened by both deficits of wealth and deficits of agency. Sen describes that “unfreedom,” or low levels of agency, will suppress the wellbeing effects of higher levels of wealth. We introduce another condition, “frustrated freedom,” in which higher levels of agency belief can heighten the poverty effects of low levels of wealth. Presenting data from a study of female heads of household in rural Mozambique, we find that agency belief moderates the relationship between wealth and wellbeing, uncovering evidence of frustrated freedom.

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*Key words* — poverty, capabilities, agency, wellbeing, Mozambique, Africa

## 1. INTRODUCTION

Various measures of wealth, including household income and absolute poverty lines, have long served to measure development, and, by extension, overall wellbeing and quality of life. Yet, studies have also shown that wealth has a complicated relationship with wellbeing. Researchers have found that “links between material resources and subjective wellbeing are weak” in developing country contexts (Camfield, Choudhury, & Devine, 2007; Easterlin, 2001; Gough & McGregor, 2007; McGregor, 2007; Müller, 2010, p. 255). This is true not just for people who are poor. The economic and psychological literature on this dynamic in the developed world has also found non-linear relationships between differences in wealth and differences in wellbeing (see Deaton, 2007; Kahneman, 2011; Krueger, 2009; Layard, 2010).

Amartya Sen posits an independence of the variation between income poverty and agency to explain why two otherwise similar and comparably resource-poor individuals (e.g., one from a US inner city, the other from rural India) could experience dramatically different levels of wellbeing (Sen, 1999). The greater observed poverty of one in contrast to the other is explained as the consequence of a relative insufficiency of the agency required to convert available resources into wellbeing. Sen hypothesizes that one of the most insidious deficits of poverty is this insufficiency of the agency, which he labels “unfreedom.” Building on this observation, the capabilities approach views the ends of development as substantive freedom—the ability of people to live the lives that they themselves value. Such human development not only depends on opportunities such as those created by wealth, but also on the agency people who are poor need to mobilize those opportunities to achieve the life that they desire (see Alkire, 2005; Clark, 2009; Crocker & Robeyns, 2010; Foster, 2011; Sen, 2002).

While this suggests that wellbeing is correlated with the agency that actors are able to employ, agentive pursuits may

not necessarily enhance welfare or personal advantage (Crocker & Robeyns, 2010). Persons may well choose to pursue ends that they have reason to value but that entail costs to personal welfare or material utility (e.g., other regarding aims) (Alkire, 2010). For example, giving one’s life for a cause would diminish personal welfare and yet could still be a valued exercise of agency toward one’s values. There are additional theoretical reasons to question a simple relationship between higher levels of agency and wellbeing. Graham (2011) suggests that diminished wellbeing may result from a kind of surfeit or excess agency: “The process of acquiring agency may in and of itself produce short-term unhappiness. And, if prospects of a more fulfilling life are raised but the opportunity to live that life does not materialize, one can surely imagine lasting unhappiness as a result” (p. 47).

In this article, we employ the concept of “agency belief” to refer to the ability to envision and pursue goals that people value; it is this deliberative sense of self-determination that underlies ones’ ability to choose to live the life they value. In isolating this component of agency, we build on a focus within the empirical literature under the capability approach (Alkire, 2008; Alsop, Bertelsen, & Holland, 2006; Kotan, 2010; Narayan, 2005).

Based on a large random sample of female heads of household from the Zambézia province of Mozambique, this paper

\* This work is made possible by the generous support of the American people through the United States Agency for International Development (USAID)—Mozambique (Award No. 656-A-00-09-00141-00) through a subgrant from World Vision, Inc. and by Vanderbilt University through the endowment of the Amos Christie Chair in Global Health. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. The contents are the responsibility of the author(s) and do not necessarily reflect the views of USAID, the United States Government, or World Vision, Inc. Final revision accepted: February 2, 2013.

explores the condition where similarly resourced poor individuals, at least subjectively, report different levels of agency. In particular, we examine the consequences for persons whose reported agency is significantly greater than comparably resourced others. In the context of this study, the objective, absolute level of resources is severely limited, which tightly bounds levels of health, wealth, education, and safety. In this context, we propose that high levels of agency belief may be associated with decreases in subjective wellbeing. That is, that subjective wellbeing improves with increasing agency belief up to a point, after which increases in agency belief will be associated with a decrease in subjective wellbeing, a condition we label “frustrated freedom.”

## 2. WEALTH AND WELLBEING

Conventional welfare economics holds that more wealth gives people more choice, which they will then use to pursue their preferences and utilities. While there was, and still is, considerable debate on what levels of absolute or relative income are considered deficient enough to be labeled “poor,” income has served as both the measure of poverty and the focus of development interventions. In recent years, this basic understanding has been the subject of significant critique. Sen (1999) and others demonstrate that differences in wealth among people who are poor have a limited relationship with differences in the lived conditions of poverty. Lived poverty is not merely an absence of wealth nor is its alleviation merely a question of the increase in wealth.

Easterlin (2001) famously observed the apparent paradox that while within countries wealthier people are on average happier than poorer ones, between countries there is little relationship between per capita income and average happiness (c.f. Stevenson & Wolfers, 2007). Numerous studies have demonstrated that differences in wealth have a limited and non-linear relationship with differences in individual happiness or life satisfaction. Gilbert (2006), Graham (2011) and Layard (2010) stress the importance of non-material aspects of wellbeing (stable marriage, employment, social networks, health are all associated with happiness; unhappiness is associated with divorce, unemployment, and economic instability). In a study of Latin America, Graham and Lora (2009) found that friends and family were most important to the happiness of people who are poor, but that work and health mattered most to the affluent.

This is true not just for the developing world. Stiglitz, Sen, and Fitoussi (2010) make the case that policy in France and the developed world should focus on increasing quality of life, understood to include broad measures of both objective and subjective wellbeing. They write that “quantitative measures of these subjective aspects hold the promise of delivering not just a good measure of quality of life per se, but also a better understanding of its determinants, reaching beyond people’s income and material conditions” (2010, p. 18). They go on to note that “proponents of the capability approach also emphasize that subjective states are not the only things that matter, and that expanding people’s opportunities is important itself, even if this does not show up in greater subjective wellbeing” (p. 64).

Research in happiness psychology and economics has also examined the relationship between wealth and wellbeing, focusing particularly on developed country contexts. Layard (2010), Kahneman (2011), and others argue that there is a curvilinear relationship between wealth and happiness: more income produces proportionate advances in happiness up to a given point. Kahneman (2011, p. 397) reports that above

household incomes of \$75,000 in high-cost areas in the United States, there is no increase in experienced happiness with income increases. Kahneman and Deaton (2010) argue that while hedonic happiness is not tightly associated with income, broader measures of life-satisfaction do have an asymptotic relationship.

Sen is critical of utility models in traditional welfare economics (1992, 2009; see also Clark, 2009; Crocker & Robeyns, 2010). He observes that in terms of “the mental metric of utility” people tend to adapt their aspirations to the context of what is perceived as possible and realistic (see also Elster, 1983). This means that a “a person’s deprivation, then, may not at all show up in the metrics of pleasure, desire fulfillment, *etc.*, even though he or she may be quite unable to be adequately nourished, decently clothed, minimally educated and so on” (Sen, 1990, p. 45; see also Clark, 2009; Foster, 2011).

At the same time, Sen’s rejection of the welfare utility model compels that new weight be given to life satisfaction and subjective wellbeing (see Alkire, 2002). For the purposes of this paper, we employ a conception of wellbeing based on life evaluation and overall life satisfaction. The social psychology literature distinguishes between hedonic happiness and our focus, subjective wellbeing (Kahneman, 2011). From this perspective, the achievement of goals that appear counter-preferential in terms of immediate personal welfare (hedonic happiness) may nonetheless advance reported long term life satisfaction (subjective wellbeing). Often missed by revealed preference models (Clark, 2009; Foster, 2011), subjective wellbeing is fundamental to understanding what the “life that one values” means (Chambers, 1997; Graham, 2011; Narayan & Patesch, 2002).

## 3. AGENCY AND SUBJECTIVE WELLBEING

Sen’s perspective at once expands the realm of determinants of poverty out from wealth alone and, significantly, respects the aspirations and desires of people who live in poverty. The ability to act on what one values, or “what a person can do in line with his or her conception of the good” (Sen, 1985, p. 206), contributes to wellbeing both through the effective conversion of opportunity into valued outcomes and through the value of agency itself. However, this “agency achievement” may not necessarily enhance wellbeing to the extent well-being is considered personal welfare or utility (Crocker & Robeyns, 2010; Sen, 1985).

In Sen’s approach, “capabilities” define the space of what is possible for individuals to do or to be. The goal of development is to increase capabilities, to ensure that people have “agency freedom” the freedom to choose their own life path and the power to effectively pursue their goals (Sen, 1993; Crocker & Robeyns, 2010; Foster, 2011). Freedom of speech, for example, requires the capabilities of literacy and technology, and the freedom of self-determination requires a whole range of capabilities that allow individuals to achieve those things and states of being that they themselves see as valuable (see Alkire, 2008).

The capability approach to development theory and practice emphasizes the importance of individual and collective capacity to convert objective levels of resources and opportunities into the lives people would choose for themselves. Sen (1999) understands this choosing as intrinsically motivated, stemming from agency or empowerment. That is, substantive freedom entails choosing consistent with one’s values and not simply self-interest or extrinsic reward seeking. Alkire (2008) shows that it is largely assumed that agency contributes

directly to wellbeing, since pursuing one's own goals would, ipso facto, increase one's (subjective) wellbeing. However, as noted above, this relationship may not be simple and direct. Both from a normative perspective in terms of ends one has reason to value and an experiential perspective in terms of the personal welfare consequences of what one chooses to pursue, agency may not always nor necessarily enhance wellbeing (Crocker & Robeyns, 2010; Robeyns, in press). Recent normative developments in the capability approach have placed new emphasis on actual achievements and the potential that such achievements might well reduce personal welfare (see Crocker & Robeyns, 2010). Empirically, this effect is difficult to measure, although it may be largely captured by subjective measures of life satisfaction.

Consistent with the capability approach, Kotan (2010, p. 370) defines agency as "the ability to exert power so as to influence the state of the world, do so in a purposeful way and in line with self-established objectives." In this view, what distinguishes the effects of agency from other sources of wellbeing affecting outcomes is that the actors themselves are active and effective. Sen (1999) posits a view of agency that combines both subjective elements (deliberation, self-determination) and effective elements (action, impact on world) (see Crocker & Robeyns, 2010).

To the extent that agency is appreciated by the actor, it is a psychological state of being. Composed of psychological traits such as confidence, will, intention, autonomy, and aspiration, agency is quality of a person that interacts in complex and mutually constitutive ways with material resources, opportunity structures, and life histories. As a quality of person, agency then is importantly intra-psychoic. We label this subjective construct "agency belief" to distinguish it from the related construct of objective or observed agency (what Alkire, 2008 terms effective power).

#### 4. AGENCY BELIEF AND WEALTH: POVERTY AND UNFREEDOM

In the emerging understanding of the relationship between agency and wealth, absolute poverty is marked by a significant deficit of both factors. Non-poverty is, in turn, described as a sufficiency of both agency and wealth. The capability approach contends that significant deficits in wellbeing are not only created by absolute poverty. In the context of increasing wealth, Sen describes an expectation that any increase in wellbeing may be limited for people living in poverty unless their agency is comparably enhanced. This description of unfreedom or agency poverty has revolutionized development theory and practice over the last decades. The primary implication has been to tie the concern for enhancement of the resources available to people who are poor with enhancement of their agency to capitalize on such resources, their capability to achieve substantive freedom.

In a parallel literature to welfare economics and development studies, happiness psychologists and economists have been studying the dynamics of wellbeing across levels of resources. In the general population, economic psychology has observed that increases in wealth have a diminishing positive impact on wellbeing. One explanation may be that changes in wealth may outpace enhancements of agency (e.g., the problem of sudden wealth faced by a lottery winner). That is, persons may experience greater opportunity than they are capable of converting into their own wellbeing. For example, in studies of British civil servants (hardly a disadvantaged group), those who describe themselves as having low levels of empowerment

report lower levels of health and wellbeing in comparison with their more empowered peers (Marmot & Wilkinson, 2001). This is a condition comparable to unfreedom in that it is characterized by a deficit of agency in comparison to wealth. However it is experienced at levels of relative welfare that can hardly be described as poverty. Thus, in both the development and happiness literature there is some evidence of the independence of changes in wealth and agency.

Sen's proposal that unfreedom is due primarily to a lack of agency may well be associated with the resigned contentment or happiness described in the psychology and economics literatures. Graham (2011) has studied the paradox of "happy peasants and frustrated achievers." Her happy peasants fall into a category that Sen cautions is a misleading form of adaptation to circumstances. For the frustrated affluent, their condition is perhaps due to the hedonic treadmill of adapting quickly to upward mobility (James, 2008). But, as David Clark notes, adaptation can occur either through adjusting aspirations upward or by adjusting them downward (see also Nussbaum, 2000; Sen, 1992).

#### 5. POVERTY AND FRUSTRATED FREEDOM

An individual's agency beliefs are not fixed. Agency belief can be enhanced, attained, or diminished over time and through political and social transformations (Dreze & Sen, 1996). Agency beliefs might also be importantly impacted by immediate experiences. Alkire (2008) for example describes how attending a women's social support and assertiveness training group could trigger an expansion of agency belief. Through such increases in agency belief, persons are able to convert greater stores of available opportunities into the outcomes they value for themselves, their families, and the world.

Nonetheless, increases in agency belief are not necessarily accompanied by a comparable degree of agency achievement. As the construct of unfreedom posits, the available opportunity may vary independently of the conversion capacity of a person's degree of agency. While the objective level of available resource may theoretically bound achieved agency: the same may not be true for a person's perceived degree of agency. Persons may well believe that the potential for achievement that they have in their own agency exceeds the limits for achievement bounded by their objective opportunities. There are at least two pathways through which the degree of agency belief might vary independently of the extent of the objective opportunity for conversion and potentially exceed that potential: perceptual bias or unrealized expectations.

When viewed as a quality of person subject to psychological and social influences, agency beliefs can vary as a result of psychological bias and error. There is a significant body of evidence that documents "individual's tendency to overestimate their abilities" (Kogan, 2009). Such self-serving biases and other attribution errors might be expected to lead some, if not many, persons to assess their own agency beliefs in excess of the evidence of objective achieved agency. This can create the condition of wealth and agency relationships described above under which persons may experience levels of agency in "excess" of their available wealth. Even without a particular bias or error, a person might reasonably imagine that they possess a degree of agency that has the potential to accomplish more of what they would choose, should they be endowed with greater opportunity. While such potential cannot be confirmed as effective, an individual may still have warrant to their belief in their agency, and possibly regret its unrealized potential.

Graham and Lora (2009) describe a process of comparative appreciation of one's agency, a comparison between an imagined and an experienced result. This comparative appreciation of agency in proportion to expectations is also found in the general findings of equity theory (Adams, 1963; Drydyk, 2012). In the equity theory formulation, an aversive reaction is expected if an individual perceives an unfavorable comparison between their ratio of outcomes to agency (described as perceived personal inputs) and the ratio of a salient comparison others. Extensive studies of perceived pay inequity have found the expectations of equity theory to be robust, global, and profound (Carrell & Dittrich, 1978). These reactions are unbalanced in the sense that people only find the under-reward conditions, those conditions when their agency/outcome ratio is unfavorably compared to others or their imagined self, aversive. In contrast, equaled or exceeded expectations are not generally found to be experienced negatively.

From these observations one can expect that an experienced "excess" in agency belief might at a point actually diminish one's sense of wellbeing, precisely because one's agency beliefs cannot be fully realized due to the limitations of one's wealth. Thus, it is theoretically possible to describe not only conditions of absolute poverty, substantive freedom, and unfreedom, but also a fourth condition in which a person may think or feel that their agency is greater in potential than that allowed by the limits of their wealth. In the development literature though, there has been little attention to the theoretically describable fourth condition. In such a condition, resource deficits may frustrate the perceived capacity to successfully make the decision and choices that one may believe would enhance wellbeing. We label the potential fourth condition "frustrated freedom."

Ferguson (1999) provides an example of frustrated freedom in his study of the copper boom in Zambia and its aftermath. Ferguson shows how rapid economic growth expands the range of capabilities and expectations; the aspirations window of ordinary Zambians opened wide and provided new points of reference for dreams of the future. After the bust, these dreams became unviable, perceived and previously achieved agency was no longer effective, and "a cynical skepticism has replaced an earnest faith when it comes to a modernizing, progressing Zambia, ... the sense that so many people have of having been cheated and betrayed by this turn of events" (Ferguson, 1999, p. 14).

## 6. FOUR CONDITIONS OF WEALTH AND AGENCY BELIEFS

Figure 1, describes the four proposed conditions that might result from distinct alignments between independently varying levels of agency belief and resources. These conditions include the two conditions of poverty previously predicted by the capability approach: absolute poverty when levels of wealth and agency belief are both low; and unfreedom when wealth is relatively greater, but agency belief remains low. The non-poverty condition of sufficient agency and wealth is also described and here labeled "substantive freedom." Finally, the proposed condition of poverty we label frustrated freedom is found where agency belief is greater and coupled with insufficient levels of wealth.

Absolute poverty is marked by deficits in both agency belief and wealth and non-poverty is marked by sufficiency on both. Following the emphasis in the literature of the direct value of both agency belief and wealth on subjective wellbeing, we expected to find a linear relationship: the more agency belief

	Low agency	Sufficient agency
Low wealth	Absolute poverty	Frustrated freedom
Sufficient wealth	Unfreedom	Substantive freedom

Figure 1. Four conditions of poverty.

and/or the more wealth, the greater the sense of wellbeing. For the current study this leads us to expect:

**H1.** Higher levels of wealth will be associated with higher reported levels of subjective wellbeing.

and

**H2.** Higher levels of agency belief will be associated with higher reported levels of subjective wellbeing.

The second condition of poverty is found where there is a relatively greater level of wealth, but a persistent deficit in agency belief, or what Sen describes as "unfreedom." This leads us for the current study to expect:

**H3.** The relationship between wealth and subjective wellbeing will be moderated by the level of agency belief such that at higher levels of wealth, persons with relatively lower levels of agency belief will report lower levels of subjective wellbeing.

Finally, we theorize that a third condition of poverty will be created by the experience of persons who have persistently low levels of wealth but nevertheless subjectively assess their agency as relatively higher. We have labeled this condition "frustrated freedom." This leads us to expect:

**H4.** The level of agency belief will moderate the relationship between wealth and subjective wellbeing such that at relatively higher levels of agency belief, persons with low levels of wealth will report lower levels of subjective wellbeing.

## 7. STUDY DESIGN

To investigate the relationships between agency and wealth on the wellbeing of persons in poverty, we analyzed data from a large-scale population survey conducted in the Zambézia province of Mozambique. These data were collected as part of the monitoring and evaluation of a USAID funded initiative known as Strengthening Communities through Integrated Programing (SCIP). The Zambézia project, which began in 2009, is called Ogumaniha (in the local Chuabo language, ogumaniha means "united/integrated for a common purpose.").

The broad goal of the 5-year project is to improve health and livelihoods in Zambézia by pursuing the consolidation of an integrated, innovative, and sustainable community-based program supporting cross-sector integration of USAID's development actions in the province (Vergara *et al.*, 2011).

The percentage of the population living below the nationally defined poverty level in Mozambique is 54%, which translates roughly to 10 million Mozambicans trying to meet their basic human needs on an income of less than one US dollar a day. The major elements contributing to the vulnerability of its people are the lack of social infrastructure, poor health and sanitation, food insecurity (low levels of food production, frequent food shortages, lack of alternative sources of income, and poor access to markets), and spread of diseases, especially human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) and malaria. Because many rural areas have undeveloped markets and suffer from lack of infrastructure, the population's livelihood in those areas revolves around subsistence farming and informal production and trade. It is therefore difficult to compare social, economic, and human development and its impact on health in a context where there is tremendous diversity in the means of production and trade within a limited range of opportunities. Mozambique is one of the 10 countries most affected by HIV in the world, with an adult prevalence recently estimated at 12% (INSIDA, 2009). In addition, the epidemic varies considerably with some areas having an adult prevalence over 20% (INSIDA, 2009).

Located in central Mozambique, Zambézia is a remote, underdeveloped province with rich agricultural potential but chronically vulnerable to livelihood insecurity. Health service access is extremely low. Even though the overall HIV prevalence in Zambézia is estimated to be 13% (INSIDA, 2009), seropositivity among pregnant women attending antenatal services in selected urban areas ranges from 14% to 35% (MISAU, 2009). The maternal mortality rate is high, at 520 maternal deaths per 100,000 live births; infant mortality is 130 out of 1,000 live births, partly because of the remoteness of communities and lack of access to emergency care (WHO, 2011).

The researchers collaborated with the chief sampling statistician in Mozambique's Institute of Statistics (Instituto Nacional de Estatística—INE) to select two representative samples. The first sample selected 196 enumeration areas (EA) stratified by planned project intervention with probability proportional to size (PPS) in three geographically diverse districts (Alto Molocue, Morrumbala, and Namacurra) according to the most recent census. This concentrated sample allows for increased data collection yielding more precise estimates for the baseline and five-year project evaluation. A second sample of 68 EA selected with PPS from the remaining districts in Zambézia Province allows for province-wide estimates of baseline data. Using topographic maps from INE with the help of the local community leaders, survey teams divided the EA into four quadrants. Starting in her assigned quadrant, an interviewer would systematically approach the first four households for interview. The total sample size was calculated at 3,960 households for the desired precision by using data from previous surveys in the area to estimate design effect.

## 8. MEASURES

The survey instrument included information on variables in several dimensions (demographics, education, health, consumption, income, resources, housing and agency). Most questions were adapted from widely used survey tools used around

the world, many previously employed in Mozambique. These include the Demographic and Health Surveys (UNICEF, 2010a, 2010b) and the Core Welfare Indicator Survey (World Bank, 2007; Pradhan, 2007; Wold, 2004). Several modules were adapted from various other tools routinely used for specific topics of interest, such as food insecurity, nutrition, HIV knowledge and stigma, and agricultural production and practices. The English version of the survey tool can be found in the baseline survey report (Vergara *et al.*, 2011).

The section on social barriers and social participation addresses various factors that may shape wellbeing, from access to social support networks to decision making within the family and gender differences. Questions selected for this section were based on concepts from the Oxford Poverty and Human Development Initiative (OPHI, 2008), and selected from surveys used by UNICEF and others (Bhuiya *et al.*, 2007; Pulerwitz, 2008; OPHI, 2008; UNICEF, 2010a, 2010b) The section related to quality of life (which in this paper we call subjective wellbeing) was based on several WHO quality of life scales (WHO, 1997, 2002).

Revisions were done prior to field-testing in order to adapt the Portuguese version of the document to reflect the linguistic and social context of Mozambique. Field testing was conducted with the support of experienced staff from Vanderbilt's Latin American Public Opinion Project (LAPOP). Once the survey was deemed ready in Portuguese it was translated to the five principal local languages in Zambézia (INE, 2008): Nyanja, Elomwe, Emakhwa, Chisena, and Echuabo by faculty at the Universidade Pedagógica de Quelimane. The final translated surveys were checked for accuracy using panels of bilingual Portuguese—native local language interviewers.

## 9. MEASURES OF WEALTH

The measurement of household income is particularly problematic in high poverty areas (Ferguson, Tandon, Gakidou, & Murray, 2002). In the current sample 48% report no monetary income whatsoever. Increasingly in economics and development monetary income is no longer the preferred measure. Instead, a "permanent income" (Friedman, 1957), or wealth measure based ownership of selected assets is employed. "Poverty stemming from lack of resources is associated with low income, but it is perhaps more closely related to low wealth. Low wealth individuals always have low income, but not all low income individuals have low wealth. In that sense, wealth and poverty are more closely related than income and poverty. Modern financial economics research recognizes this difference in frameworks in which individuals make consumption decisions based on wealth, where wealth includes the capitalized value of labor income, rather than just income" (Merton, 1971).

We applied a measure of permanent income developed the World Bank (Ferguson *et al.*, 2002). The statistical model utilized in this analysis is developed in terms of a latent variable which denotes the permanent income of household. This variable is, by definition, unobserved. What are observed are a series of asset and other indicator variables for each household. Figure 2 lists the 37 asset indicators selected for the model. We labeled this measure "Permanent\_Income"

## 10. MEASURES OF AGENCY BELIEF

In this paper we focus on this view as agency as a subjective understanding: agency belief. To assess levels of agency belief we employed a subjective self-report measure. As Alkire (2008)

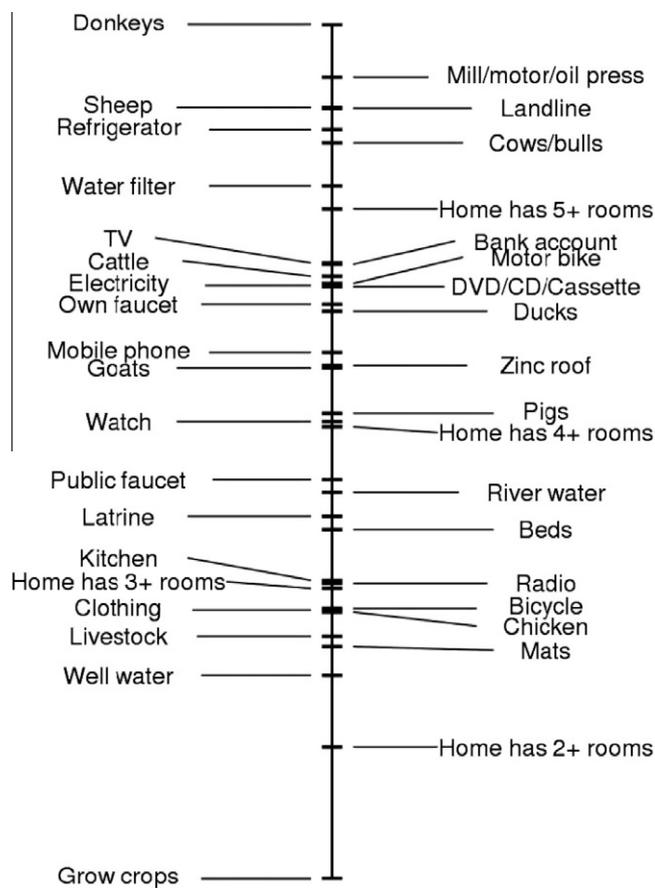


Figure 2. *Permanent income indicator variable ladder for 37 indicators.*

points out, since the observed consequences of agency are in many cases identical to the measures of conditions of poverty (e.g., years of schooling or health status), “it is impossible to explore interconnections between agency and poverty when the same indicators are used to represent both phenomena” (Alkire, 2008, p. 10).

To measure agency belief, we utilized a measure developed for the World Values Survey designed to assess individual’s subjective evaluation of their competence or confidence in making decisions that could impact their life. The measure asked: Some people believe they can decide their own destiny, while others think they do not have control over their destiny. Please, to what extent do you believe you can decide your own destiny? Response options ranged on a 4 point Likert scale from “Nothing, a little, enough, or a lot? We labeled this measure “Agency\_Destiny”.

Deci and Ryan (1980) distinguish two key components of agency: (1) competence, the extent to which one perceives the potential efficacy of ones’ choices; and (2) autonomy, the extent to which one perceives the right or freedom to choose. Importantly, autonomy is not synonymous with individualism (Chirkov, Ryan, Kim, & Kaplan, 2003). Autonomy can be a shared or collective freedom in which one internalizes the group preferences as one’s own. This quality of autonomy allows for a robustness of the agency construct across cultural variations in collectivism and individualism (Alkire, 2008; Chirkov *et al.*, 2003). As the informants in the survey were female heads of household, we thought it relevant to also explore the gendered decision autonomy aspect of agency belief. To capture the gender aspects of agency belief, heads of households were asked “In general, do you think you can make decisions by yourself, freely,

without consulting your husband? Please, to which extent can you do this: never, sometimes, almost always or always?” We labeled this measure “Agency\_GE”.

## 11. MEASURE OF SUBJECTIVE WELLBEING

In this article we employ a measure of wellbeing based on self-assessment of overall life satisfaction, in contrast to metrics of hedonic happiness (Diener, 1994). To assess the levels of subjective wellbeing we selected items from the WHO quality of life scale 31 (WHO, 1997, 2002). These items have been used extensively in the assessment of wellbeing in populations in conditions like those found in Zambezia. The items selected captured the general subjective wellbeing of the respondents, i.e., the extent to which one is satisfied with life. This scale included questions of the form: “How would you rate your X?” The response options ranged on a five point scale from very satisfied to very dissatisfied. The specific items measured satisfaction with quality of life, health, ability to perform daily living activities, capacity for work, and transport. We label this composite scale “Wellbeing.”

## 12. COVARIATES

We controlled for standard demographic indicators of age, education, marital status, religion, an indicator for whether the distance of place of residence from the clinic/health facility is less than 10 kilometers and the number of years the household’s residence has been in the same location. To account for potential alternative sources of variation in wellbeing and wealth, and consistent with a broad view of the opportunity structures that might be associated with wellbeing, we employed five measures: geographic isolation, community participation, social support, legal rights, and religiosity (Narayan, 2005; Nussbaum, 2000). These opportunity structure variables were measured by scales. Geographic isolation was measured by five items reporting the time to travel for the informant in minutes to school, healthcare facilities, local markets, and work (if applicable). Community participation was assessed via seven questions about the extent to which members of the household attend community development events, such as meetings about water and sanitation, the community health council, orphans and vulnerable children, agricultural and general community development. Attendance ranged from weekly to yearly or never. Social support was assessed via five questions measuring degree of support received from various sources including family, friends, and other people. Legal rights were assessed via three questions about the extent to which the household has adequate and reliable access the traditional and modern legal/justice systems and have certitude of fair treatment should they need to resort to in these systems. An exemplar item is “Does your household have access to the modern (state) legal system (court or tribunal) if you should need it?” Religiosity was assessed via three questions about the extent to which the informant considered religion as an important factor in their lives. An exemplar item is “Has any church ever helped you to meet needs for you and your family?”.

## 13. ANALYSIS

### (a) Preliminary analysis

A preliminary best-subsets regression analysis was used to study how an individual’s quality of life was related to the

demographic, resource and agency belief variables. As a starting point, we used the Bayesian Information Criterion (BIC, Schwarz, 1978) to select the best model for Wellbeing in terms of the main effects of all of the available variables. Permanent\_Income and the primary agency belief variable (Agency\_Destiny) were important elements of this model, and the other predictors in this model were used as controls in our study of the four hypotheses.

(b) *Models*

Altogether, we use four general linear models to summarize the relevant findings. Model 1 uses only Permanent\_Income and the Agency\_Destiny variable as predictors, whereas in Model 2, we add the controls,

Model 1:

$$\text{Wellbeing} = \beta_0 + \beta_1 \text{Permanent\_Income} + \sum_l \alpha_l (\text{Agency\_Destiny})_l + \varepsilon;$$

Model 2:

$$\text{Wellbeing} = \beta_0 + \beta_1 \text{Permanent\_Income} + \sum_l \alpha_l (\text{Agency\_Destiny})_l + \sum_k \gamma_k \text{Control}_k + \varepsilon.$$

Each of these models is a relatively simple analysis of covariance, where Agency\_Destiny is the single factor and the other variables are used as covariates. For convenience, the coefficients,  $\alpha_\ell$ , for each level of agency-destiny, are estimated subject to the constraint that the coefficient at the highest level is set to zero ( $\alpha_4 \equiv 0$ ), so that each coefficient represents the effect (or contrast) with respect to level 4.

The second agency variable, which considers gender aspects or gender equity (Agency\_GE), does not have significant incremental value when added to Model 2 as a main effect. Nevertheless, the interaction between the two agency variables, Agency\_Destiny and Agency\_GE, does have a very significant relationship to quality of life, and an exploratory analysis indicates that it is actually the difference between these two agency variables that has the greatest explanatory power. Model 3 summarizes this relationship and provides the best scientific model (i.e., the lowest value of the Bayesian Information Criterion) that we were able to find in terms of the two agency variables, and the other available predictors, Model 3:

$$\text{Wellbeing} = \beta_0 + \beta_1 \text{Permanent\_Income} + \sum_k \gamma_k \text{Control}_k + \sum_l \alpha_l [(\text{Agency\_Destiny}) - (\text{Agency\_GE})]_l + \varepsilon.$$

In Model 3, the difference between the two agency variables is a single factor and the other variables are used as covariates. As a final exploratory step, we construct Model 4 by adding the only level of Agency\_Destiny that has significant incremental value relative to Model 3, Model 4:

$$\text{Wellbeing} = \beta_0 + \beta_1 \text{Permanent\_Income} + \sum_k \gamma_k \text{Control}_k + \sum_l \alpha_l [(\text{Agency\_Destiny}) - (\text{Agency\_GE})]_l + \lambda_0 (\text{Penultimate Level of Agency\_Destiny}) + \varepsilon.$$

(In Models 3 and 4, the factor level coefficients,  $\alpha_\ell$ , are estimated subject to the constraint that  $\alpha_L \equiv 0$ , where  $L$  is the highest level.)

For each of the Models 1–4, we also considered an alternative form where coefficients were estimated separately within two income groups: those with and without monetary income (46% have no monetary income). In each case, the coefficient of Permanent\_Income was significantly different across income groups, while the other coefficients were not. Thus, we applied a simple two-class form of each model where a different coefficient of Permanent\_Income was estimated within each income group.

## 14. RESULTS

### (a) *Summary statistics*

The descriptive statistics for the basic demographic variables and the scales are in Table 1, and Table 2 provides Cronbach alpha values for each of the scales.

Figures 3–5 illustrate both the unfreedom and frustrated freedom effects in terms of each agency variable. Within each of two income groups (those with and without monetary income), Figure 3 illustrates how the average wellbeing tends to increase as Agency\_Destiny increases to level 3 (the unfreedom effect), and then decreases at the highest agency level (4) (the frustrated freedom effect). The estimation of Models 1 and 2 (which will be summarized in Table 3), shows that this change is statistically significant.

Figure 4 illustrates the same phenomenon by quartile of Permanent\_Income, although for individuals at the highest wealth quartile, there is no apparent decrease in average wellbeing for individuals at the highest agency level. Figure 5 examines the effects of Figure 4 in terms of the actual distribution of wellbeing as a box plot at each agency level within wealth quartile. Here the boxes represent the subpopulation between the first and third quartiles (i.e., the middle 50% of each group) and within the lowest two wealth quartiles, there is an apparent downward shift in the median wellbeing as agency level moves to its highest level (i.e., from level 3 to level 4).

### (b) *Tests of hypotheses*

Table 3 summarizes the results for Models 1–4. We now interpret these results relative to the hypotheses.

**Hypothesis 1.** Higher levels of wealth will be associated with higher reported levels of subjective wellbeing.

All models provide substantial support for the positive effect of both monetary income and permanent income. Models 2–4 also show the statistically significant association between higher wellbeing and higher levels on the other resource scales (community participation, legal rights, and religiosity).

**Hypothesis 2.** Higher levels of agency belief will be associated with higher reported levels of subjective wellbeing.

Models 1 and 2 test this hypothesis directly for the primary measure of agency belief, Agency\_Destiny. Both models show there is a significantly higher wellbeing associated with

Table 1. *Descriptive statistics*

Variables	Mean	SD	Quartiles		
			1st Quartile	Median	3rd Quartile
Wellbeing	62	16	52	60	73
Permanent income <sup>a</sup>	0.44	0.40	0.14	0.42	0.70
Permanent income percentile when no monetary income	39	27	15	35	60
Permanent income percentile when there is monetary income	60	27	39	63	83
No monetary income (indicator) <sup>b</sup>	0.46	0.50	0	0	1
Agency_Destiny <sup>c</sup>	1.78	0.80	1	2	2
Agency_GE <sup>c</sup>	1.71	0.75	1	2	2
<i>Controls</i> <sup>d</sup>					
Age	41	22	25	34	48
Education	2.0	2.5	0	1	3
Less than 10 km from HC facility (indicator)	0.35	0.48	0	0	1
Time in the same location (years)	12	15	3	6	17
Geographic isolation	19	27	0.74	6.9	20
Community participation	84	17	75	89	100
Social support	95	11	100	100	100
Legal rights	80	22	61	83	100
Religiosity	70	12	58	67	75

Source: Survey of 3,749 female heads of household described in introduction (response rate per variable is generally at or above 97%, except for information on monetary income and agency variables, where the response rate is 92%).

<sup>a</sup>This is a continuous scale measure (Ferguson *et al.*, 2002).

<sup>b</sup>This is a dummy variable for whether the household had any monetary income.

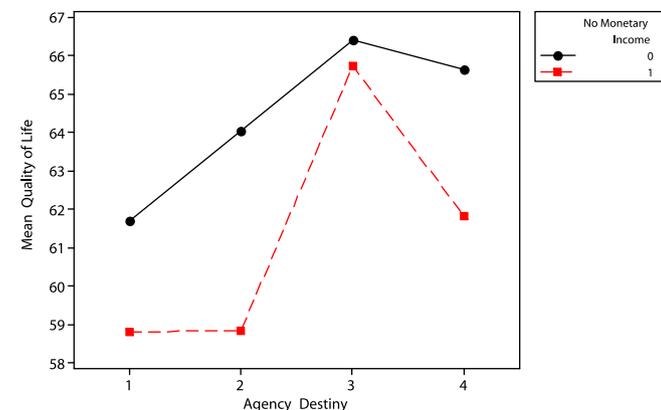
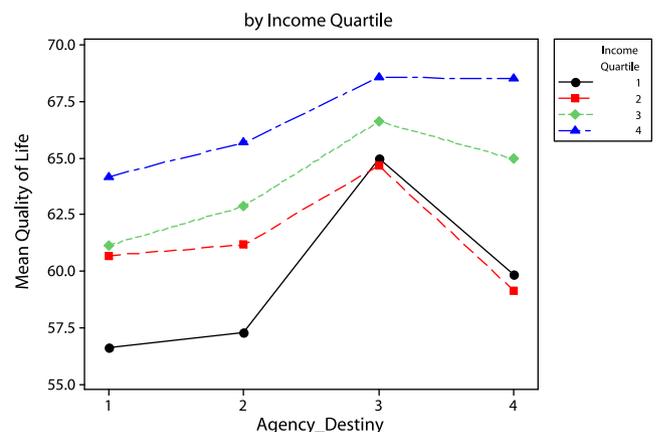
<sup>c</sup>These are ordinal variables (each with 4 levels).

<sup>d</sup>Marital status and religion are also used as controls. Both are nominal variables. There are four marital status groups: Married/Common-Law, Single, Widowed, Divorced/Separated (72%, 19%, 6%, and 4%, respectively). There are 11 religious groups: the three most common are Catholic, Protestant (Mainline), and Evangelical and Pentecostal (14%, 11%, and 9%, respectively). Traditional religions are listed as an affiliation by less than 1% of the respondents. The last five control variables are scales. See Table 2 for details on their reliability.

Table 2. *Scale item reliability*

Scale	Number of survey items	Cronbach's Alpha
Wellbeing	6	0.84
Geographic isolation	5	0.89
Community participation	7	0.78
Social support	5	0.80
Legal rights	3	0.57
Religious rights	3	0.60

Note: Each scale has high discriminant validity: the proportion of variance explained by each scale is more than 10 times its largest squared correlation with any other scale.

Figure 3. *Agency\_Destiny curves for wellbeing by monetary income groups.*Figure 4. *Agency\_Destiny curves for wellbeing by Permanent\_Income quartile.*

the penultimate level of agency belief (level 3): wellbeing at this level is significantly greater than at any other level ( $p < 0.001$  in each case). Wellbeing is also significantly lower at agency belief levels 1 and 2, relative to agency level 4. So overall there is a significantly higher wellbeing associated with the two higher levels of agency belief, although the highest average wellbeing is experienced at the penultimate level of agency belief.

**Hypothesis 3.** The relationship between wealth and wellbeing will be moderated by the level of agency belief such that at higher levels of wealth, persons with relatively lower levels of agency belief will report lower levels of subjective wellbeing.

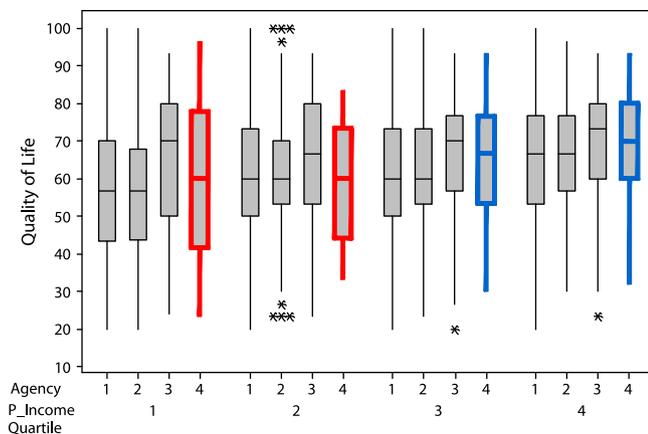


Figure 5. Wellbeing by Agency\_Destiny level.

Models 1 and 2 support this hypothesis and show that lower levels of Agency\_Destiny (levels 1 and 2), are associated with significantly lower levels of quality of life, across monetary income groups even after correcting for the differential effects of permanent income within those groups.

**Hypothesis 4.** The level of agency belief will moderate the relationship between wealth and subjective wellbeing such that

at relatively higher levels of agency belief, persons with low levels of wealth will report lower levels of subjective wellbeing.

Models 1 and 2 show that there is a significantly lower level of wellbeing at the highest agency belief level, relative to the penultimate level, even after adjusting for the effects of wealth. Model 2 shows that this effect persists even when other control variables related to wellbeing are applied; these control variables include three other resource measures (community participation, legal rights, and religiosity). This result supports H4, but we did not find that the decrease in wellbeing between agency belief levels 3 and 4 differed significantly across wealth levels, whether wealth is defined in terms of monetary or permanent income. Still this is consistent with H4, since all of the individuals studied here are at relatively low levels of resource wealth. Model 4 also provides support for H4. This model applies the controls of Model 2, but also corrects for the disparity between Agency\_Destiny and Agency\_GE. Even after these adjustments, we see a significant spike in wellbeing at the penultimate level of Agency\_Destiny ( $p < 0.05$ , one-sided).

## 15. ADDITIONAL EXPLORATORY FINDINGS

Models 3 and 4 provide an exploration of the determinants of wellbeing that goes beyond a direct study of the four

Table 3. Models for wellbeing

Model	1	2	3	4
Sample size	3,194	2,862	2,823	2,823
Permanent income when no monetary income	8.05***	7.33***	7.33***	7.35***
Permanent income when there is monetary income	4.76***	3.79***	3.38 **	3.44**
No monetary income (indicator)	-3.90***	-3.12***	-3.39***	-3.30***
<i>Agency_Destiny (levels) [contrasts relative to level 4]</i>				
1	-1.94***	-1.90***		
2	-1.31**	-1.33**		
3	2.84***	2.83***		1.95#
<i>(Agency_Destiny) - (Agency_GE) (levels) [contrasts relative to level +3]</i>				
-3			2.03	2.40
-2			0.37	0.69
-1			-3.68***	-3.51***
0			-3.45***	-3.22***
1			-0.10	-0.46
2			4.64**	3.69*
<i>Significant controls</i>				
Time in the same location (years)		-0.053 **	-0.055 **	-0.055 **
Community participation		0.067***	0.068***	0.069***
Legal rights		0.079***	0.077***	0.077***
Religiosity		0.072 **	0.072 **	0.073 **
Geographic isolation		0.031 **	0.035 **	0.034 **
<i>Other controls</i>				
Age		-0.0058	-0.0005	-0.0009
Education		0.066	0.077	0.077
Less than 10 km from HC facility (indicator)		-0.89	-1.17#	-1.08
Marital status (married/common-law, single, widowed, divorced/separated)		NS (3df) <sup>a</sup>	(3df)*	(3df)*
Religion (11 groups)		NS (10 df) <sup>a</sup>	NS(10 df) <sup>a</sup>	NS(10 df) <sup>a</sup>
Social support		0.019	0.022	0.020

In each model, the coefficients of the two permanent income variables (permanent income when there is monetary income *versus* when there is no monetary income) are significantly different ( $p < 0.05$ , Wald's test).

<sup>a</sup>These controls have the indicated number of degrees of freedom (and are not significant).

#  $p < 0.1$  (two-sided levels).

\*  $p < 0.05$  (two-sided levels).

\*\*  $p < 0.01$  (two-sided levels).

\*\*\*  $p < 0.001$  (two-sided levels).

hypotheses. Model 3 provides the best overall paradigm for quality of life, and shows how wellbeing is strongly associated with the difference between the two agency belief variables (Agency\_Destiny minus Agency\_GE). The coefficients in Table 3 refer to the effects on wellbeing relative to the greatest positive disparity between these two levels (+3), which occurs when an individual believes she can “always” determine her own destiny, but does not believe she is ever allowed to make these decisions (Agency\_Destiny = 4, Agency\_GE = 1). The greatest positive effect on wellbeing occurs when this disparity between agency belief levels is at its penultimate level of 2 (i.e.,  $[(Agency\_Destiny) - (Agency\_GE)] = 2$ ): here Agency\_Destiny is at one of its highest levels (levels 3 or 4), and Agency\_GE is two levels below. In this case, the respondent believes she has “enough” (or a “lot” of) control over their destiny but can “never” (or “only sometimes”) make decisions freely. Presumably this effect is due primarily to the fact that the primary agency level is still very high and the respondent is not as frustrated at this level as one tends to be when the disparity between the two agency belief variables is even greater. The greatest negative effects occur when the disparity is at 0 or -1: in each of these cases, Agency\_Destiny is below level 4 more than 95% of the time, and it is usually below level 3, so that the fact that these groups have significantly lower average wellbeing is presumably due primarily to the substantially lower levels of Agency\_Destiny.

## 16. DISCUSSION

In the Mozambique data we find that subjective wellbeing is greater in association with both wealth and self-reported agency belief. However, these associations are neither linear nor additive. Often agency belief and wealth act in concert, but there are also cases in which agency belief increases and yet become thwarted when meeting up against the limitations of wealth. We find evidence that the relationships are moderated with higher levels of wealth having diminishingly positive association with wellbeing when coupled with lower levels of agency belief. We describe this finding as consistent with Sen's core critique of traditional welfare economics which posits that the impact of resources and opportunity structures on wellbeing is activated or limited by the level individual agency.

Our data show how agency belief can limit or diminish wellbeing when individuals experience the constraints of material resources and structural conditions. We chose to measure agency subjectively and to specifically explore gender equity in decision making. In our sample, direct relationships between these measures of agency belief and wellbeing are comparable, and the two measures related complexly when we examined potential moderation effects (see also Varkey, Kureshi, & Lesnick, 2010). The difference between the two forms of agency belief described an apparently particularly difficult state in which a female head of household believes strongly that her decisions can affect her destiny, but finds herself denied the autonomy in her relationship to makes such decisions. This complexity reflects underlying dynamics within the construct of agency and deserves further study.

Many have noted that agency has various components (Sen, 1993; Ibrahim & Alkire, 2007; Kotan, 2010). In particular, there is a distinction made between the confidence to exert agency and the power to effect real change in the world. Ibrahim and Alkire (2007, p. 9) observe that opportunity

structures are necessary as the “preconditions for effective agency.” Thus, a capability model must account for the effective freedom to choose and the structural conditions and resources outside of a single individual's control that limit the range of possibilities. As Narayan (2005) points out, it is not just the psychological but also the human and material resources a person can call upon in achieving their goals that can lead to empowered action. In many ways, this is an iteration of the long-standing debate in the social science between agency and structure—the range of the ability to act and structural constraints on action. Relevant is Foster's (2011) definition of opportunity freedom as “the extent to which a set of options offers a decision maker real opportunities to achieve.” Foster notes that economic models of choice tend to focus on outcomes, which leaves unexamined the ways in which choices are constrained and compromised by structural conditions.

The results we report here support these findings while calling attention to the important interrelation of agency belief and wealth in relation to wellbeing. We find that while both material resources and agency belief are important, their relative balance also affects wellbeing. Just as adequate material resources combined with a deficit of agency results in Sen's unfreedom, we find that high levels of agency belief combined with limited opportunities produce a condition of frustrated freedom. This work also points to the important issue of relative wealth and wellbeing. Wilkinson and Pickett (2009) have shown the wide range of effects that stem from societal inequality, and work by James (2008), Frank (2007), and others have shown how income inequality invokes psycho-social reactions linked to notions of fairness and dignity. While these themes merit more attention in the development literature, they are beyond the scope of this article.

Our findings on frustrated freedom point to the complex relationships between gendered decision autonomy and material conditions in their impact on wellbeing. These findings call for future research on agency and poverty. While multiple dimensions of poverty are widely recognized, the constitutive elements are often seen as additive or substitutive and what remain underexplored are the complex relationships between them. For example, changes in resource conditions and changes in levels of agency may interact to enhance or diminish persons' evaluations of their own wellbeing. In general, the relationship between enhancements in agency has been seen as complementary: increases in material conditions and resources have a positive impact on wellbeing. However, our findings here and recent research from economics and psychology raise the possibility that such a simple complementarity may not be the result. The finding of adaptation to changes in resources (particularly wealth, but also resources such as health and legal rights) and the relativity of the assessment of wealth and resource adequacy raise significant issues for how the goal of development might actually be achieved.

Our results give weight to the assertion that wellbeing is highly multidimensional, not just made up of many dimensions. That is to say, wellbeing results from the interaction of factors, especially, as we have emphasized, agency and material resources. Conventional wisdom holds that wellbeing should increase with income and wealth, a view long shared by scholars and policy makers. Our results point to an understanding of the complex interplay of agency belief, opportunity structures (including wealth and material resources), and subjective wellbeing. They also suggest that development programs should focus on linking efforts to enhance both agency belief and wealth to promote agency achievement and wellbeing.

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