Statistics out of their element: The link between socio-economic status and health in West Africa

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1. Introduction

Social and economic stratification is a feature of virtually all known human societies, but the various manifestations of high and low status are far from uniform. Wealth, for example, may be denominated in currency (as is the case in Western nations), or in camels, cattle, wives, or any number of items. Thus, it seems that devising appropriate indicators for developing countries would be a simple matter of understanding their social and economic context. And yet, there is little consensus on appropriate measures of socio-economic status in the developing world.

There is an emerging consensus in the literature examining the statistical relationship between socio-economic status and health, which finds a robust – if somewhat obscure – link in both rich countries and poor. Medical studies consistently show that low socio-economic status is detrimental to health outcomes in the individual patient. This is also true at the level of the population – that is, more unequal societies experience worse health than more equal societies. Epidemiologists, economists, and medical doctors concur: health and socio-economic status are linked. But how to measure status, already a slippery concept, in settings where Western-style statistics on income and wealth are inappropriate, not to mention unavailable? This paper will attempt to address this question by examining a case study: namely, the link between socio-economic status and health in West Africa.

Teasing out the specifics of this link will become increasingly important as more medical services are offered in the developing world, either under international aid programs, such as those of the Global Fund, or as rising incomes impel developing-country citizens to demand better care. Let us take the example of HIV/AIDS: as recently as the year 2000, the number of Africans receiving effective treatment could be counted in the tens of thousands. Today, over a quarter of HIV-positive Africans needing treatment receives it, representing some

1.3 million patients (UNAIDS, 2007). As these and other programs continue to expand, there is a risk that benefits will accrue not to the neediest, but to those who are already financially and socially well-positioned (the so-called "inverse equity hypothesis). Now is the time for a profound reflection, leading to accurate and robust measures of socio-economic status in Africa.

2. Problems with measuring socio-economic status in West Africa

Researchers now understand that is inappropriate and often impossible to apply Western measures of socio-economic status to the West African setting, already diverse in itself. First of all, these data seldom exist, and are often of poor quality when they do. Written records such as pay stubs and records on land holdings are scarce or non-existent; furthermore, a large percentage of economic activity takes place outside the formal market. But aside from these practical difficulties, researchers have struggled to identify measures of status that accurately capture the socio-economic position of denizens of the developing world. In the words of anthropologist Polly Hill,

> The main reason for the extremely poor quality of so many official socio-economic statistics relating to the rural tropical world is the general failure to realize the degree to which statistical procedures are based on conditions peculiar to advanced countries – *where only a small minority of the world's population lives* (Hill, 1984).

Hill's article was published over 20 years ago, but her critiques are still relevant. Researchers fail to develop appropriate measures, she says, because "so many prevailing circumstances [in rural poor settings] are wholly unimaginable" to them.

Her experiences in rural West Africa and India led Hill to identify a number of flaws with the practice of applying Western measures of wealth and income to settings in the developing world. She eviscerates the concept of "monthly income": in rural poor settings (and in many urban poor settings as well), people utilize a vast number of earning strategies to survive, each bringing in a small portion of what Western economists (but not the people themselves) would aggregate into a monthly sum. It is easy to imagine how asking respondents to mentally total dozens of these small amounts would lead to unreliable results – and Hill and others have strongly

cautioned policymakers on the "extreme inappropriateness" of this measure. Indeed,

> the notion of work such as it exists in Niger [West Africa] differs significantly with that of modern economies … The complexity and the diversity of revenue sources are truly worthy of analysis … The exploitation of natural resources contributes to revenues. We can add as well foraging in the trash, selling products from the garden, transportation, salaried work, children's work, domestic work, the sale of artisanal products, migration, and mutual-help societies. (Gilliard 2005)

This quote, from a book-length study on poverty in Niger, suggests that accurately measuring "income" in poor Nigerien families is a formidable task.

Another frequent stumbling block is the Western notion of a "household" as an entity unified with respect to production and consumption decisions. Hill's studies of the large polygamous households of Hausaland (West Africa) suggest that such groupings are likely to contain individuals and sets of individuals that act autonomously in the economic sense. She cites one "household" supposedly containing 106 members. But the concept of the "household" may be faulty for regrouping not just too *many* people – but also too *few*. In West Africa, households are rarely isolated – that is, they contribute to the collective survival. Seasonal links between country and town are a common survival strategy – workers help bring in the harvest, then leave the village and seek jobs in the city for the other months of the year (Gilliard, 2005). Neighbours and friends help each other cover the difficult ends of the month – yet such solidarity finds no place in the paradigm of the self-contained household.

But these practical measurement challenges can distract researchers from the sociological particularities of economic activity specific to each society. For example, it can be argued that Western and African economic systems have different historical origins, different goals, and therefore different means to achieve these goals. In Europe, favourable natural[2] and cultural[3] conditions for economic growth assisted the rise of capitalism – an economic system whose goal is the accumulation of wealth and capital. The African continent, meanwhile, was fragmented by its varied geography and climates, and farming methods were (and often still are) necessarily labour-intensive. One ethnographer, David Maranz, summarizes that the goal

[2] Compared to other regions, Eurasia is favorably endowed with food crops and domesticable animals, and trade and technology networks were promoted by the continent's east-west axis. None of these conditions prevailed in Africa. See Jared Diamond, *Guns, Germs, and Steel* (1997), W.W. Norton

[3] I refer to Max Weber's argument that the Protestant ethic facilitated the rise of capitalism

of African economic systems was therefore "the distribution of economic resources so that all persons may have their minimum needs met, or at least they may survive" (Maranz, 2001). According to Maranz, one manifestation is the difference between European dowries (whereby family wealth is passed directly down to one's own daughter) and African bride wealth (whereby the groom's payment to the bride's family compensates for the latter's loss of a worker).

From this latter point of view, resources are to be used, not hoarded – not least because one's neighbour or friend may suddenly appear and ask to use these resources. Refusing such a request when unused resources are in plain view is, in many African societies, a social impossibility. Indeed, Maranz relates that some African ethnic groups have a pejorative term for Westerners that translates as "people who put food in a refrigerator." Of course, these sociological anecdotes are far from hard proof, but it is true that, to an extent scarcely imaginable in the West, many economic needs in African societies are met through the generosity of friends and relatives. This constant economic give and take means that socio-economic status in Africa is definitely linked to the extent of one's social network – likely to a greater extent than in Western societies.

Despite these social pressures – not to mention the fact that per capita income levels often barely cover basic needs – saving and investment are also African phenomena, and not just Western ones. According to one study:

> What is striking is the volume of commerce and production that has been possible without the full panoply of credit, insurance, futures markets, stock companies, limited liability, and other legal and financial services that make up the formal sector of modern economies. (Stiansen and Guyer, 1999)

Indeed, the evidence suggests a remarkable capacity to save, despite very low rates of formal banking and the constant demands of friends and relatives. But, since friends and relatives can make claims on unused resources, surplus wealth is often used to purchase expensive goods. As anthropologist Parker Shipton notes, "Rural Gambian savings strategies are mainly concerned, then, with removing wealth from the form of readily accessible cash, without appearing antisocial" (Maranz, 2001). Thus, measuring wealth in these conditions may consist of tabulating and assessing the value of the goods that savings have been converted into, such as improved housing, livestock, and durable goods like refrigerators and televisions. In these contexts, economic activity is indeed bustling, but statistical measures designed in the West are hopelessly ill-adapted to capture it.

Furthermore, socio-economic status seems to be more variable in African societies than it is in the West. Scholars have been bedevilled by the inconsistency of social status in Africa – both within families (e.g. a modern elite man may have an illiterate wife, or wives), and according to context (e.g. modern and traditional forms of behaviour coexist in the same person). "At present, in Africa – and for some time to come – social classes only partially resemble those of the industrialized West, for the modern elite, who are in the most favourable position to break away from traditional institutions, have not done so" (Tuden and Plotnicov, 1970).

In particular, the notion of "who is poor" in Africa, and in other developing regions, is often quite divorced from Western ideas, such as an income-based poverty line. According to Robert Chambers, an expert on poverty in the global South,

> The realities of poor people are local, complex, diverse and dynamic. Income-poverty, though important, is only one aspect of deprivation (Chambers, 1995).

Chambers claims that an accurate definition of poverty must include notions of vulnerability, seasonality, powerlessness and humiliation; he has set forth a sociologic-anthropologic method of measuring *relative* poverty that is similar to the approach of Amartya Sen, who defines poverty as the restriction of choices available to people (Sen, 1999). Contrariwise, the World Bank attempts to ascertain *absolute* poverty by measuring household revenues and expenditures, and by defining a minimum basket of basic needs. Both approaches are pertinent to understanding socio-economic status in Africa, but neither is sufficient alone.

One serious attempt at measuring poverty in Africa is the Lived Poverty Index (LPI). Better known as Afrobarometer, the survey asks how often Africans in 16 countries go without enough food, clean water, medicine, cooking fuel, a cash income, and school expenses (Mattes 2008). (Respondents went most often without a cash income.) By asking about the necessaries of basic living, rather than tabulating economic goods, Afrobarometer provides a unique picture of poverty in Africa. Such information can supplement our understanding of socio-economic status, and its link to health in West Africa.

3. The link between socio-economic status and access to health care in West Africa

Income impacts upon health, and vice versa, in West Africa as in all nations studied thus far. Low income can damage health, as it is often associated with poor diet, unhealthy or dangerous living conditions, occupational hazards, and exposure to pollution. Contrariwise, economist Angus Deaton points out that health shocks are important determinants of earnings and consumption in developing countries, and that the poorest members of agricultural villages worldwide are often those who are unable to work due to illness or disability (Deaton, 2003).

In 2003, anthropologists, Jaffré and Olivier de Sardan, working out of several West African capitals published a major study of regional health structures, and their dismal results are given away by the book's title, *Une médecine inhospitalière* ("An inhospitable medicine"). Indeed, it seems that the rich can buy themselves privacy and civil treatment from West African healthcare workers, while the poor must face insults, humiliation, and even violence at the hands of health professionals. Memories of such treatment repel further usage of health services. Furthermore, the poor are the first to suffer from the petty corruption that riddles the system (Alou, 2003).

The poor are also more likely to have recourse to alternative treatments, a situation with distinct medical and financial consequences that are generally unknown in rich countries. Unable to afford drugs at the pharmacy, the "first therapeutic recourse of the poor" in West Africa is to buy medicines of dubious quality at the market or from travelling vendors. Typically, such medicines lack packaging or expiration dates, and are exposed to the relentless sun while being carried on the heads of travelling vendors. According to one Guinean,

> We don't have money to go the pharmacy. In pharmacies, if they tell you the price of just one product, you'll tear up the prescription. If I had the means, I wouldn't buy my medicines in the market anymore. (Jaffré and Olivier de Sardan, 2003)

The poor are also much more likely to gather medicinal plants, or to make use of the services of a *marabout* (traditional healer). One study in Conakry (Guinea) found that 50% of poor households went to a *marabout* as a first recourse, compared to 0% of non-poor households (Jaffré and Olivier de Sardan, 2003). However, traditional healing is a cultural as well as an economic phenomenon, and West Africans of

higher socio-economic status certainly patronize healers as well – as is evidenced by the very high prices of some traditional treatments.

The anthropologists behind *Une médecine inhospitalière* – among other social scientists working in Africa – find that, more so than any quantitative definition of poverty, the notion of *vulnerability* provides the best understanding of socio-economic status with regards to health. For example:

> Exposure to external shocks and a lack of means to deal with unforeseen events, such as illness or the loss of economic capital, constitute enormous problems for economically insecure households … For many of the people interviewed, poverty is first and foremost an inability to recover from unexpected blows, and not a simple lack of revenue. (Gilliard, 2005)

Indeed, there are certain groups in every society for whom proper health care is especially out of reach. For example, an American study found that "vulnerable" groups (women, African-Americans, injection drug users, and the least educated) were only 35-59% as likely to have had access to AIDS treatment by December 1996 as non-vulnerable populations (Andersen et al., 2000). In developing countries, vulnerable populations are more likely to be the elderly, people with few social connections (the so-called "indigent poor"), and divorced and widowed women, as gender norms prevent women from fully participating in productive activities (Masanjala, 2007). One further aspect of "vulnerability" that is often left by the wayside – perhaps because capturing it in a statistic is so difficult – is psychological vulnerability. According to one poor Nigerien:

> He who is poor can do nothing, but be ashamed: there is nothing but shame for him (Gilliard, 2005).

Poverty is an inherently stressful, not to mention humiliating, condition, the health effects of which remain poorly understood today.

4. Examples of indicators

Our discussion thus far has likely done more to discourage future attempts to accurately measure status in West African countries than to encourage them. However, a preliminary schema of the link between socio-economic status and health in these settings might include an understanding of the following hypothesized mechanisms: a lack of financial resources to pay for care, increased "vulnerability" according to certain indicators, barriers to information on health and health services, and increased use of traditional medicine among the poor.

The measurement difficulties are hard to overstate – yet it is clear that obtaining macro-level statistical information on revenue in most West African countries is essentially impossible at this time. Thus, the only feasible route is that of smaller-scale statistical analyses drawn from personal interviews conducted by either by Western researchers or local researchers and officials (for example, in the model of Afrobarometer). Such studies can go a long way to illuminate relationships – more importantly, they are the best we can do.

Based on our previous discussion, let us propose some additional statistical measures of socio-economic status that may be appropriate in African settings:

- regular monthly revenue (yes/no, in cash/in kind)
- remittances from a relative abroad (yes/no)
- whether the patient sold belongings to pay for care (yes/no)
- inventory of durable goods and livestock
- dietary patterns (number of meals eaten per day, frequency of meat consumption)
- female-headed household (yes/no)
- sanitary conditions: access to clean water, adequate toilet facilities (yes/no)
- education: years of formal schooling, ability to speak the national language (yes/no)
- cell phone ownership (yes/no)
- distance from the nearest regional health care structure

Of course, many of these factors impact both upon socio-economic status and on health, and statistical analyses must take care when teasing out cause and effect.

It goes without saying that such statistics would be painstaking to gather and would in no way resemble Western statistical studies on socio-economic status and health. But then, given the unique nature of the African socio-economic context, why would it? Until African states are capable of collecting data on a broad scale – and African economies come to resemble those of the rich countries – African statistics will not – and should not – replicate Western methodology.

5. Conclusions

Measuring socio-economic status in the West African setting is particularly tricky for a number of cultural, as well as practical, reasons. Doing so is impossible without a nuanced understanding of poverty – a dynamic and multi-faceted phenomenon if there ever were

one. Should poverty be conceived of as absolute or relative? Is one poor if school fees are beyond reach for one's children? Is one poor if one has enough to eat? Can one live without running water and electricity, and not be considered poor?

But accurately measuring status will only become more important as public health programs undergo the much-vaunted "scaling up" that comes with an influx of Western (and African) resources. Otherwise, these public health programs risk exacerbating, rather than easing, socio-economic inequality, which carries certain social and political perils.

The Nobel-prize winning economist Amartya Sen has suggested that a country's economic success be measured not its GDP but by mortality rates and life expectancy. Unlike income or wealth, "a long life is *inter alia* fairly universally valued – and valued very strongly." Sen's insight is even more commonsensical on a microeconomic level: while we may tolerate inequities in personal income, are we willing to accept mortality rates that differ by social class? But before we can conceive of a classless society – at least with regard to health outcomes – our mission is clear: to understand inequalities as they exist today, and to transform our statistical findings into just and effective policy.

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