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Missing Millions and Measuring Development Progress

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Summary. — In developing countries, assessments of progress toward development goals are based increasingly on household surveys. These are inappropriate for obtaining information about the poorest. Typically, they omit *by design*: the homeless; those in institutions; and mobile, nomadic, or pastoralist populations. Moreover, *in practice*, household surveys typically under-represent: those in fragile, disjointed households; slum populations and areas posing security risks. Those six sub-groups constitute a large fraction of the "poorest of the poor". We estimate that 250 million are missed worldwide from the sampling frames of such surveys and from many censuses and their omission may well lead to substantial biases.
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1. INTRODUCTION

For several decades and in some countries for centuries, populations have been counted through national, usually decennial, censuses in which enumerators go to households. Inter-censal population estimates have usually depended on reliable birth and death registration systems. In the 2001 Census, the UK moved away from direct enumeration by asking people to self-report. In many developed countries, there are moves toward substituting administrative records such as municipal population registers and *ad hoc* or existing surveys for the once-in-a-decade census which is seen as cumbersome, rapidly out-of-date and encountering increasing difficulty in getting citizens to complete the census form. Comparing 2000 and 2010 for 40 European countries, Valente (2010) shows how the number using the traditional method has declined from 27 to 21 while the numbers using registers or a mixture of registers and total enumeration of sample surveys has increased from 9 to 18.

In other rich countries there is an increasing reliance on data linkage through, for example, linking the tax system with an Identity Card or Number that citizens are required to have by law. In most middle and low income countries, however, vital registration systems have never been fully functioning (Chan et al., 2010; Powell, 1981; Vlahov et al., 2011), and there has been a similar decline in donor interest in censuses and vital registration systems (Setel et al., 2007), as evidenced by the demise of the International Institute for Vital Registration and Statistics, and an increasing reliance on household surveys.

Many countries run national economic and social surveys to provide detailed information on consumer prices, income, and employment and other relevant data for planning. But the main sources are often internationally standardized surveys with reasonably large sample sizes (see Table 1); and, although now many of these surveys are funded at least in part by national governments, there is in fact very little variation in either content or methodology to respond to national circumstances. [1]

There is the obvious "throwing the baby out with the bathwater" problem with this move away from censuses to relying on surveys because drawing a sample for a survey depends on having a sampling frame in the first place which is frequently based on the census. Clearly any problem with the census, if used as the sampling frame for a national survey, will lead to that sampling frame being biased. In addition, household surveys almost always have less complete coverage by design than censuses in ways we discuss later in this section. But there is—rather strangely—little recognition of the problems, which may be partly derived from reliance on an incomplete sampling frame and partly because of their design, in using household surveys to count or measure absolute numbers and the rates of income poverty or other forms of deprivation, especially for children who are the focus of many development goals such as the Millenium Development Goals (MDGs).

The issue is covered by Atkinson and Marlier (2010) but only briefly which is surprising given the focus of their book is on social inclusion. Mishra, Barrere, Hong & Khan (2008) claim to correct for bias in HIV sero-prevalence estimates from national household surveys including not only non-response in 14 countries but also non-household population groups in five countries. But their estimates of the non-household populations, which appear to be based solely on census reports, are very low and not consistent with the evidence. [2]

The remainder of this introduction provides illustrations of how censuses may themselves not always provide a complete sampling frame; how this may impact on assessments of levels of poverty; and introduces the added problems of using household surveys to measure poverty.

(a) Coverage of censuses

Population censuses have always faced problems of complete enumeration. Groups of adults have been excluded from censuses in some countries for political or practical reasons. Non-citizens, cultural minorities or marginalized groups and specific categories of prisoners or rebels have often been excluded for political reasons (Buettner and Garland, 2008). Although this is probably now less frequent and certainly becoming more transparent, there are still several examples: coverage of tribal groups in the recent 2011 census in India

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Table 1. *Major International Social Surveys: Sample Size, Sponsor, Focus, and Coverage*

	Sample size	Sponsor	Focus	Coverage
Demographic and Health Surveys (DHS)	5,000–30,000 households	Macro International funded by USAID	Health, fertility. Infant, and child mortality, HIV/STD, domestic violence	90 countries (200 + surveys), c. every 5 years
Labour Force Surveys (LFS)	"Relatively large-scale"	ILO or national statistical offices	Employment	Countries (200 + surveys), c. biennial
Living Standards Measurement Surveys (LSMS)	2,000–5,000 households	World Bank	Consumption and expenditure; household activities	34 countries (100 + surveys), c. every 5 years
Multiple Indicator Cluster Survey (MICS)	5,000–20,000 households	UNICEF	Children and women: education, maternal, and infant health	60 countries (200 + surveys), c. every 5 years

Sources: Information from main website pages of DHS, LFS, LSMS, MICS.

for example was disputed by the Committee on Protection of Tribal Areas in the North East (2011); Afghans in Iran are not counted (Abbasi-Shavazi and Sadeghi, 2011). Rebellious territories, isolated villages, or the number of Bangladeshi emigrants to India is disputed (Pempel, 2011).

People who object to or avoid government oversight have sometimes been excluded for practical reasons (Buettner and Garland, 2008). One population sub-group which is very often excluded from national censuses in developing countries is seasonal and temporary internal migrants or other highly mobile economic groups (Deshingkar, 2006). Pincus and Sender (2008), based on a detailed analysis of the fluidity of the labor market in Vietnam, show how both censuses and household surveys exclude most temporary migrants because they are based on official household lists which excluded those who had arrived less than 6 months previously. While a subsequent Law of Residence in 2007 (Refugee Research Tribunal, 2008) relaxed those rigid requirements, the 2009 Population and housing census (General Statistical Office, 2010, p. 31) says that they were not enumerated in the Census.

In addition, in many developing countries, the census enumerators are often police or other government officials who tend to use security based national identity cards or family registration cards to validate the citizenship status of those they are enumerating. Their incentive is to confirm their own registration work and to catch anyone who has escaped their net. This practice is widespread in Africa; but also has happened in Asia in, for example China (Di, 2011) and Indonesia (Dwinosumono, 2006), although the latter has tried to overcome the problem with better training and recruitment of non-officials as enumerators.

Therefore, the general problem that censuses are not themselves necessarily complete or accurate is well understood (see also Carr-Hill, 2009); a specific example is provided by Chandrasekhar (2005) who attributes the puzzling decline of eight million slum dwellers in India over the nineties to an underestimation of the number of people living in the urban slums. There is an emerging consensus as to what constitutes good census practice (see Appendix 1); and clear adoption of these UN guidelines would at least make interpretation and comparison easier. At the same time, the quality of censuses in developing countries has probably improved during 2000–10, with many more countries carrying out censuses and technological innovation in mapping, enumeration, and data capture (UN Statistical Division (UNSD), 2010).

The guidelines are clear in principle but there can still be problems in enumeration in practice for each of the concepts:

(i) Housekeeping concept

While Cinderella is a fairy tale, the exclusion of poor servants from the census count in rich households (even though they will usually be sharing some of the household food) especially in Asia is not, and their personal poverty is therefore missed; for different reasons, [3]

(ii) Mobile populations

In developed countries, the young are highly mobile—usually male—are also difficult to count, especially when they live in collective households, but they are relatively well-off; in developing countries, the mobile are mainly nomads/pastoralists and rural–urban migrants, and they may well be among the poorest at least in income terms.

(iii) Homelessness and counting De Facto rather than De Jure populations

These will always be difficult to count, especially where there are disputes over nationality: for example over the stateless ("bidun jinsiya" meaning "without nationality") in the Gulf States (Kohn, 2011; Refugees International, 2007); equally there are several millions internally displaced in many countries either as a result of civil war or because of environmental change (e.g. floods, nuclear accidents) have made their homes uninhabitable; and although counts tend to be compiled in more developed countries—for example in the Balkan States—this does not happen in Africa and Asia. A study of the nature and extent of homelessness in nine developing countries (Centre for Architectural Research and Development Overseas (CARDO), 2003) showed that most did not have any reliable data on the numbers of homeless people. Several did not have any official definition of homelessness to use in a census; but definition is important because "… most researchers agree on one fact: who we define as homeless determines how we count them". (Peressini, Mcdonald, & Hulchanski, 2010, p. 1, chap. 8.3). In some countries, street sleepers are ignored for census purposes because they have no official house or address (CARDO, 2003).

(iv) Institutional populations

There are several different types of institutions (care homes, (some) factory barracks, hospitals, the military, prisons, refugee camps, religious orders, and school dormitories) and there is still considerable variation over how some of the institutional population groups should be included in the population count. For example, there was no agreement in the 2010 US Census as to where military who are deployed overseas should