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The Data We Need for the Future We Want

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THE WORLD'S POPULATION IS projected to reach 8 billion on November 15, 2022. This makes it an ideal moment to think about how demographers and other scientists account for and project population, and how demographic data and models represent and shape lived experience of people worldwide—particularly those who identify as women. The United Nations has recently adopted an innovative Bayesian approach to predict future fertility and mortality rates (Raftery et al. 2014). This effort generates more reliable confidence intervals around the world's potential futures than the UN's previous deterministic method. However, it still relies on older demographic methods and theory: the cohort component model, a projection method that came into widespread use nearly 100 years ago (Kiser 1973), and demographic transition theory, first articulated during World War II, according to which modernization triggers a fertility decline that will continue until replacement levels are achieved (Kirk 1996).

The cohort component projection method calculates each country's future population by subtracting expected deaths and adding net migration and expected births. Expected births are determined by multiplying the number of women in each age group by the fertility rate expected under the demographic transition for that group.¹ The attribution of births to women rather than men is convenient — information about the mother nearly always appears on a birth certificate, whereas information about the father might not. (However, demographic metrics such as age-specific fertility rates and net reproduction rates could just as easily have been formulated with men in the denominator.) By calculating fertility as a function of the number of women in a population, demography designated women's bodies as the site of reproduction. And with fertility behaviors situated within the demographic transition, deviations from the model were flagged as potentially problematic, justifying external interventions. Amid widespread anxiety about global

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population growth in the decades following World War II, women's bodies became the target of population control.

The cohort component method suggests two ways to alter future population counts if mortality rates hold constant: change the number of women or change women's rate of childbearing. Population control has mainly operated through family planning programs,² which attempt to do the latter by providing contraceptives and persuading women to use them. Many family planning programs have emphasized long-acting reversible contraceptives (LARCs), which act directly on women's bodies and lower fertility rates by reducing the number of women at risk of conception. Because LARCs are controlled by medical professionals rather than users, feminist technology scholars describe them as "imposable" contraceptives (Senderowicz and Kolenda 2022; Takeshita 2012). Indeed, these methods are often recommended even to women without access to the follow-up medical care necessary to manage side effects or to remove the devices for any reason, including when pregnancy is desired (Britton et al. 2021; Gubrium et al. 2016).

Over the past fifty years, the same research programs that have collected "country-representative"³ demographic data in low-income settings to project population—such as the Knowledge, Attitudes, and Practices of Contraception surveys of the 1960s and 1970s, the World Fertility Survey of the 1970s and 1980s, and today's Demographic and Health Surveys—have promoted the uptake of modern contraceptives, with a heavy emphasis on LARCs (Merchant 2021; Riedmann 1993). Such programs typically represent their goal as decreasing rates of "unmet need" for contraceptives as part of an overall effort to speed a country's development or modernization (Halfon 2007). However, program sponsors also espouse quantitative targets (Hendrixson 2018). The aggregate nature of fertility indicators and LARC-uptake targets elides lived experiences and the multi-level complexity of childbearing and creates conditions ripe for coercion.

Amid the population-bomb anxiety of the late 1960s and early 1970s, coercion seemed to many an acceptable means of reaching the seemingly necessary end of population control (Connelly 2008). But those days are behind us (Lam 2011). We now know that controlling fertility will neither promote development nor protect the environment (National Research Council 1986). Our goals should therefore center on advancing reproductive justice, improving the lives of women and members of other marginalized groups, and promoting equitable and sustainable global and local economies. Achieving these goals will require data capable of assessing the barriers women face in achieving their personally determined health goals – especially in terms of actual lived experience at the local level. Recent efforts to address climate change have demonstrated that interactions between person and place matter for vulnerability assessments and understanding behavioral change. In fact, local climate conditions impact all aspects of women's lives—including

reproductive health goals, needs, and outcomes—in ways poorly captured by existing data and research (Grace 2017; Lau et al. 2021; Sasser 2014). In recognition of reproductive and environmental justice (Cutter 1995; Ross and Solinger 2017), it is more important than ever that data and metrics of success capture women’s true childbearing and family planning needs and experiences. Documenting fertility and family complexities with attention to context is vital and demands new place- and person-based data collection - motivated by the goals and barriers to achieving these goals that women themselves identify.

Notes

1 Demography has traditionally assumed a two-sex model in which everyone is either male or female and only female individuals can conceive.

2 Some evidence suggests that some twentieth-century population control enthusiasts also supported sex-selective abortion to reduce the number of women (Hvistendahl 2011). In the other direction, Kolk and Jebari (2022) demonstrated that the trend toward daughter preference could increase population growth rates.

3 Climate change occurs at very local levels owing to the spatial heterogeneity of natural systems and human–environment interactions. Health surveys were designed (with the use of weights) to be representative for calculating country-level health indicators. However, because the weighting schemes do not consider climate or environmental conditions, the ability of the data to represent general experiences with climate change in a given country is unknown.

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