Professor Tom Moultrie

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Tom Moultrie is professor of demography in the University of Cape Town's (UCT) Faculty of Commerce. Professor Moultrie completed a Bachelor of Business Science in Actuarial Science at UCT in 1992. Following this he obtained an MSc (distinction) in development studies from the University of London (LSE, 1998) and a PhD in demography from the University of London (LSHTM, 2002). He returned to South Africa in 2002 to take up a postdoctoral fellowship in demography at UCT.

The field of demography is small and highly specialised, and the number of academics with a particular focus on African demography is even smaller. Globally, there are barely 1 500 members of the international association of population scientists (the IUSSP). This contextual picture is material when considering Moultrie's body of work and the extent to which it has been cited (while small in the context of other disciplines), is high in this situation. Nevertheless, in his academic career, Moultrie's work has been cited over 2 000 times, and he has an h-index of 21. He has authored or co-authored 25 journal papers indexed in the Web of Science; with a further 63 papers indexed on Google Scholar.

His commitment to socially responsive scholarship is most evident in his significant contributions during the COVID-19 pandemic. He co-authored over 100 weekly reports throughout the COVID-19 pandemic with colleagues from the South African Medical Resource Council and UCT. Here he made substantial methodological and analytical contributions. This work continues and will play a small but vital role in the proposed National Institute for Pandemic Preparedness and Prevention. In addition, he authored (and then co-authored) over 100 weekly reports for the National Institute for Communicable Diseases (NICD) on the results of testing for SARS-CoV-2 during the pandemic.

Over the course of his research career (and prior to the pandemic), Moultrie's academic work focused on two themes: *fertility dynamics and patterns in sub-Saharan Africa*, and on expanding the techniques of *demographic estimation from limited, deficient, and defective data*.

Regarding the first, this work started with his doctoral research, which identified a novel pattern of childbearing and child-spacing in South Africa. Over the course of 20 years, in collaboration with Ian Timaeus (Professor Emeritus of Demography at the London School of Hygiene & Tropical Medicine), Moultrie's work has systematically advanced the field of understanding of the processes and dynamics of fertility change in sub-Saharan Africa. This is noteworthy as it is this region of the world that will determine global population dynamics until the end of the 21st century. The results of this work, which (*inter alia*) argues that fertility levels in the region might decline more slowly than previously thought, have informed widely used population projection

models. These include those produced by the United Nations, which in turn help inform the global development agenda. Moultrie is regarded as one of the foremost academic authorities on the subject, and (in addition to his academic output) provided expert input and commentary to international group meetings, as well as the international print media.

A second major body of original and distinguished academic work refers to *demographic estimation from limited, deficient, and defective data*. This work was collated in a state-of-the-art compendium of current methods for estimating demographic parameters from limited, deficient, and defective data. *Tools for Demographic Estimation*, funded by the United Nations Population Fund (UNFPA), provided this update, considering methodological advancements, of the techniques used to estimate demographic parameters (relating to fertility, mortality, and migration) in situations where the underlying data are limited (or non-existent), deficient (lacking appropriate granularity), or defective ('wrong'). Moultrie was the principal editor of this work, co-edited by five globally-eminent technical demographers. The over-arching work has been cited over 250 times, with individual chapters being further cited. He authored, or co-authored, over half the chapters in the volume, including the presentation of a novel approach to estimating historical trends in fertility using reverse-survival techniques. The impact of this work is widespread, given the limitations of most demographic data collected in censuses, and civil registration and vital statistics (CRVS) systems, in the developing world. Using these techniques, demographers and statisticians in developing countries can better track progress towards meeting the Sustainable Development Goals (SDGs). Approximately half of the SDG indicators rely on a population-related metric in either numerator or denominator (or both). Equally, without accurate (as accurate as can be derived) measures of fertility and mortality it is near impossible to accurately project populations forward.

Most countries in the global South struggle with accurate enumeration of their populations and for most their civil registration and vital statistics (CRVS) systems are inadequate. The consequences of these weaknesses were evident during the COVID-19 pandemic: limiting most of these countries' ability to build the real-time mortality monitoring systems so desperately needed at the time. Moultrie's work has assisted in providing alternative techniques to estimate the true number of deaths in a population or alternatively to be able to establish the likely completeness of the CRVS data available. His work has led to efforts to improve the completeness of CRVS systems around the developing world. This work has led to other forms of social engagement, particularly his ongoing work for the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). While attributed to the ESCAP, Moultrie was the sole author of UNESCAP's recently released 'Guidelines for estimating completeness of civil registration of vital events: a guide for practitioners' – a practical training guide (with associated spreadsheets) designed to assist national statistical offices in the estimation of their completeness of the CRVS systems. As part of this, he prepared and presented a week-long training course for national statistical offices in the region, attended by almost 100 delegates.

In addition, he was responsible for all the analyses, editing and finalisation of the 2023 UNESCAP brief that provided current regional and national estimates of death registration completeness.

Outside of these two major thrusts of his research career, Moultrie's work has stimulated debate about the discipline of demography, the SDGs, and data colonialism. Through his work with the United Nations Sustainable Development Solutions Network (UN-SDSN), he has contributed several think-pieces and policy briefs setting out concerns regarding the SDGs, and the rise of data neo-colonialism of the global South by the global North. These debates have resonance amongst South African and African scholars and scientists trying to make sense of calls for decolonisation across the academy.

While, the importance of census data is incontrovertible, the challenges to collecting census data in developing countries are manifold. Moultrie's work in this area has helped not only to expand academic knowledge in his fields but has also had practical and policy implications. His research has played a key role in advancing the agenda of developing country demography, improving census and CRVS data, and the estimation of demographic parameters. This science has sought to capacitate national governments in the South without being dependent on data from the North.