THE SAPRIN
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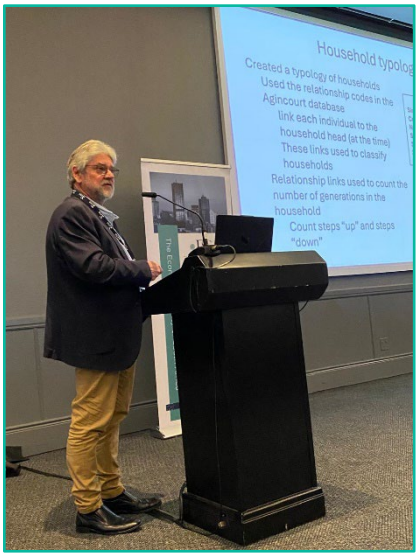
Using longitudinal population data from Health and Demographic Surveillance System (HDSS) nodes in South Africa to study household dynamics in space and time

December 2025

Professor Mark Collinson, of the SAMRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), presented a paper titled, "The Study of Household Dynamics Using Health and Demographic Surveillance System Data," at the Economic Society of South Africa (ESSA) 2025 Centenary Conference in Cape Town on 8 September 2025.

Prof Collinson explained that it is important to understand the dynamics of households in South Africa because they are a fundamental social unit that provides a foundation for health and economic wellbeing, social support, and educational attainments. He added that several social, demographic and economic forces put pressure on households and influence their dynamics.

Longitudinal data on household composition at population level are not easily found but these can be valuable in examining household dynamics.



Professor Mark Collinson at the ESSA Conference

To address this deficit, Professor Martin Wittenberg from University of Cape Town's DataFirst and Professor Mark Collinson from SAMRC/Wits Agincourt Research Unit co-led a project spanning over a decade to develop methods for analysing household dynamics using the Agincourt longitudinal HDSS data. Showing how to access these datasets, presenting what was found in the early research, and providing support for training in longitudinal analytic methods, are the main purposes of this paper.

The data preparation in the project culminated in the public release of the Agincourt Household Panel dataset, currently available on the DataFirst website. Several papers were published using this dataset that describe a typology of households in rural northeast Mpumalanga, from 1992 – 2010, showing how households change composition over time, and making comparisons with national data. The populations studied include households in rural villages of a former "Bantustan" area, households in dwellings built by government housing programmes, and Mozambican former refugee households. These methods can be applied to other longitudinal HDSS datasets.

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This work is timely due to the new availability of such HDSS datasets from rural and urban settings, developed by the South African Population Research Infrastructure Network (SAPRIN), funded by the Department of Science, Technology and Innovation (DSTI), in partnership with several universities and other stakeholders. There is routine publication of such datasets on the SAPRIN website, and the methods described in this paper can be applied to examine household dynamics in a range of under-resourced settings.

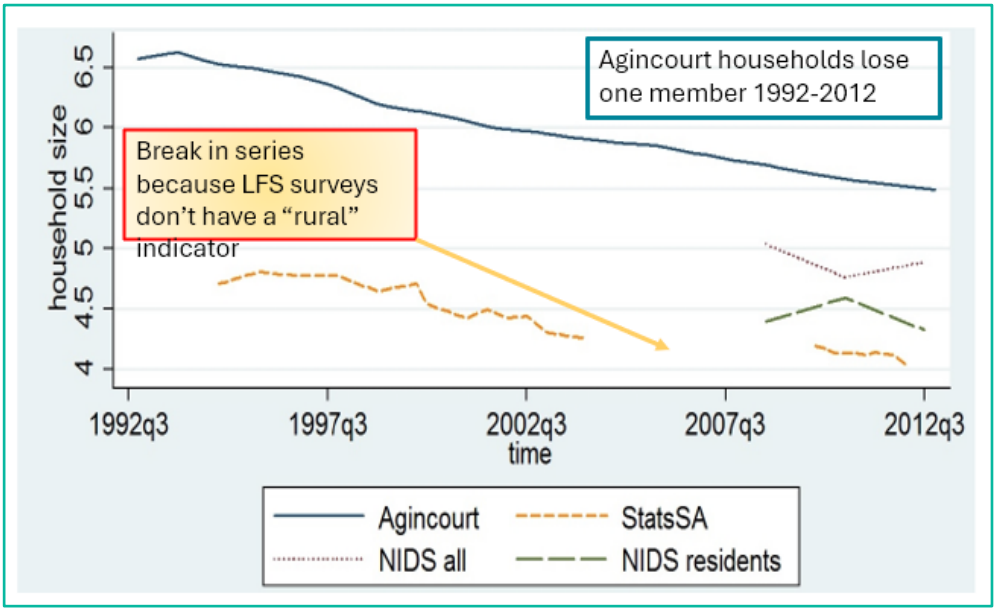

Figure: showing changes in average household size over time in the South African population

The figure above showing changes in average household size over time in the South African population, using different datasets, from i. national census (Statistics South Africa), ii. national surveys (National Income Dynamics Survey-NIDS), and iii. longitudinal health and demographic surveillance system data (Agincourt).

The presentation showed that by the early 2000s, it was already clear that household size (as measured in national surveys) was rapidly coming down. The above graph from the work in Agincourt showed that household size was decreasing in that area too.

Overall household size in rural Mpumalanga has come down largely because of three main factors: rapid, smaller household formation in "South African" villages, the creation of government housing programmes (Reconstruction and Development Programme- RDP) that relieved residential pressures and resulted in the out-migration of younger couples to the newly formed villages located nearby. Lastly, there was also a dissolution of larger households among former Mozambican refugee households and their replacement by relatively smaller ones.

A transition matrix method was used to study household transitions over time, which involves comparing each household with its own composition the previous year, and aggregating the probabilities of change occurring in each type of change, from year to year. Published results using data from 1996 – 2003 showed that households generally have a high frequency of in and out-migration, with household members coming in and going out fairly often. Key trends in household dynamics that aimed to look into questions being asked in the current literature, were as follows:

Are “nuclear” households becoming more prevalent? No, it appears they are not. And there is no support for the concern that “multi-generational” households were breaking up over time, but rather the opposite; and there does not seem to be a large increase in the proportion of people living alone, which was suggested by national data. The more enduring households had compositions that were classified as “3-generational linear” and “complex, related”.

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DataFirst – panel dataset of Agincourt data (1992-2015) link: https://www.datafirst.uct.ac.za/Dataportal/index.php/catalog/?page=1&sk=Agincourt%20household%20panel&ps=15