

Demographic Breakdown of Bilateral Migration Flows: Bridging Census and Big Data

Population migration flows are widely recognized as key indicators of short-term spatial interactions. Yet, the scarcity of detailed migration data and the diversity of measurement approaches have spurred growing interest in estimating and analyzing international and internal bilateral migration flows. China, as one of the most dynamic regions for internal migration, faces a notable lack of comprehensive bilateral migration data. Recent demographic and economic shifts have heightened attention on migration patterns among specific groups, including the elderly, children, and highly educated individuals, driving a demand for studies that incorporate demographic breakdowns. However, data disaggregated by gender, age, and education remain critically scarce. This study provides a comparative analysis of census data and emerging big data, evaluating their respective strengths and limitations in capturing China's migration flows with a focus on demographic breakdowns. Key aspects such as sampling precision, geographic resolution, and temporal coverage are systematically assessed. We propose that emerging big data can complement traditional census data, addressing data gaps during non-census years and offering new perspectives on the origins and destinations of diverse sub-populations, thereby enriching our understanding of migration dynamics in China.