



# Methods of Measuring Internal and International Migration

William L J Xu-Doeve



ANRC Publishing



**Manual**

# **Methods of Measuring Internal and International Migration**

**William L J Xu-Doeve**

It is recommended that new users of this manual first read the foreword (p iii) and the preface (p vii).

Published 2006 by ANRC Publishing, the Netherlands

Library Cataloguing-in-Publication Data

Xu-Doeve, William L J, 1953-.

Methods of Measuring Internal and International Migration. Manual / W.L.J. Xu-Doeve  
p. xx + 310 cm. 29.7 × 21.0 tables, figures

Includes bibliographical references

ANRC Publishing, 2006

ISBN-10: 90-8802-001-9 (eBook edition)

ISBN-13: 978-90-8802-001-8 (eBook edition)

Subject Area 1. Demography. 2. Population Studies. 3. Geography. 4. Planning.  
5. Statistics.

Keywords 1. Internal migration. 2. International migration. 3. Data collection. 4. Data  
processing. 5. Population census. 6. Methodology. 7. Theory construction.  
8. Stochastic process. 9. Measurement. 10. Estimation and adjustment.

NUR 755

Copyright © 2006 William L J Xu-Doeve. All rights reserved.

Without permission in writing from the copyright owner this work may not be translated, adapted, republished, redistributed, reproduced, printed, reprinted or copied in whole or in part in any form or by any electronic, magnetic, optical, mechanical or other means now known or hereafter invented or developed including but not limited to photocopying, recording or use in connection with any form of information storage, retrieval or distribution system. Please refer to the preface (p vii-xvi) for contact information.

Permission is granted to the purchaser of the digital eBook edition of this work to print on paper one copy of the eBook purchased and to digitally store one copy of the eBook purchased in such a manner that the digital eBook purchased is and remains properly secured against any infringement on the copyright including against any violation of the terms, conditions, limitations and restrictions set out above.

Permission is granted to quote brief passages from this work in connection with reviews or scholarly analysis provided the customary acknowledgement of the source is given.

Every effort has been made to ensure that the information and advice in this work is true and accurate at the time of going to press. However, neither the publisher nor the author can accept any legal responsibility or liability for any errors or omissions.

## FOREWORD

In recent decades it has become widely recognized that migration -- internal and international -- poses issues which are of major concern for policy making and management.

In particular in important parts of the developing world, internal migration continues to change the face of nations: In many developing countries, the movement of people from rural areas and smaller towns in search of better opportunities and a better future, is contributing significantly to the current massive growth of several of the major towns and cities.

International migration, too, has risen to the top of the policy agenda, both in the developed world and in the developing world. Rising flows of international migrants, both temporary and permanent, feature more and more prominently in "migration debates".

All such flows, internal and international, have significant implications for policy and decision making and for management in the public and private sectors in a range of different areas, such as: the provision of education, the provision of health care and of other services, the labour market, brain drain, remittances, housing, infrastructure, socio-economic and cultural integration, and so on.

Sound evidence-based policy and decision making in such areas demands timely and reliable information on the size of, and on the trends in, actual migration flows and migrant stocks. However, most countries experience very significant difficulties to produce such information.

All evidence suggests that worldwide there still exists considerable ambiguity about which *data sources* best to use, about the optimal *specifications of migration data*, and about the most informative *methods of measurement*. Often, approaches are characterized by important methodological weaknesses, and the resulting information is frequently surrounded by a significant degree of empirical uncertainty.

Clearly, these are key issues in view of the pressing need for the structural capacity to produce relevant information on ongoing processes of internal and international migration, information that will usually be demand driven and that should be as timely, reliable, accurate and insightful as possible.

More than 35 years ago, in 1970, the United Nations published its influential Manual VI, "*Methods of Measuring Internal Migration*", under the principal

authorship of K C Zachariah. However, its emphasis was on indirect or residual estimation methods, measuring population stocks, mortality and fertility, and merely inferring migration as the unexplained error or residual. While the United Nations subsequently also published a companion "*Recommendations on Statistics of International Migration*", most recently revised in 1998, this publication in fact deals more with sources than with methods of measurement.

Particularly in the 1970s and early 1980s, important developments took place in demographic methods of modelling and forecasting populations open to migration. The most significant among these were in the two areas of multistate demography and of population accounting.

At the time, however, developments in the methods of the actual measurement of migration failed to keep adequate pace. Even today, methods of measuring migration are a subject that tends to receive scant attention, if any, in text books and in academic teaching programmes. This is all the more noteworthy when this is compared with the ample attention paid to the measurement and estimation of mortality and fertility.

At least in part as a consequence of this, to this day many countries still collect data sets on migration which are less than optimal in terms of their ability to produce maximally insightful information on ongoing processes of internal and international migration. And, associated with this too, approaches to measurement which are less than ideal from a methodological point of view remain all too common.

"*Methods of Measuring Internal and International Migration*" comprehensively addresses the above issues. It is in many ways groundbreaking and innovative work that represents the state of the art in the measurement of migration processes.

It outlines how *methodologically sound, comprehensive and fully detailed insights into ongoing processes of internal and international migration* can be obtained, using no more than conventional duration of residence data.

Results include, for example: migration rates, migrant stocks and flows and their dynamics over time and age; migration trajectories, including circular and return migration; short-term versus long-term migration; frequent migration; and estimates of and adjustments for the incomplete enumeration of migrants. The manual outlines approaches for in-depth analyses and for explanatory studies of migration behaviour.

In particular also, the manual pays detailed attention to the applied context in terms of *operational data specifications*, in terms of *sources of data* and *methods of data collection*, and in terms of *data processing*. Standardized approaches

resulting in internationally comparable data and measurements are stressed throughout.

The methods of measurement presented in this manual are, in fact, general: they apply equally to the measurement of other demographic processes, such as mortality and fertility. The manual also includes extensive details on the measurement of such other processes.

The key focus of this manual is on the presentation of *methods and materials for actual hands-on application*, and for the production of *relevant and timely information on migration processes to enable and support evidence-based policy making, planning, monitoring and evaluation* in areas such as those mentioned earlier.

It is an essential practical resource book and reference for *national and international statistical offices*, as well as for *research institutes focusing on population issues*. It forms the basis of ongoing *skills development and structural capacity building programmes in developing countries*. And it is particularly suitable to serve as a key text book for *undergraduate and post-graduate programmes* in demography, population studies, statistics, geography, and urban and regional planning.

For many countries, in particular in the developing world, the periodic population census will in practice be the only adequate source of comprehensive data on ongoing migration processes. Most countries currently still take a census only once every ten years. While under the auspices of the United Nations the next global round of population censuses is scheduled for 2010, this date is, in fact, less precise than it might suggest. In actual practice, this 2010 round of census taking runs approximately from 2006 to 2014.

In many countries, the preparations for this census round have begun in earnest by now, and at the time of writing some countries have even taken their "2010" census already.

Thus, there is considerable urgency to make the material in this manual available as soon as possible. In considering this, I have had to balance the manifest priority of early publication against the opportunity to make any further editorial changes. Aware that any such detailed further changes would not significantly affect the substance of the material presented, a deadline of 1 October 2006 was set for the final version of the chapters.

Louise Amstein  
Editor



PLEASE NOTE

This copy of "*Methods of Measuring Internal and International Migration*" is a free inspection copy only. Access to pages 1-310 is restricted.

For full copies without this access restriction, please contact the Publisher or the Author (see p. xv).



**"Methods of Measuring Internal and International Migration"** presents the state of the art in the measurement of migration processes. Using common duration of residence data, the manual describes how methodologically sound, comprehensive and fully detailed insights into ongoing processes of internal and international migration can be obtained. Results include, for example: migration rates, migrant stocks and flows and their dynamics over time and age; migration trajectories, including circular and return migration; short-term versus long-term migration; frequent migration; and estimates of and adjustments for the incomplete enumeration of migrants. The manual outlines approaches for in-depth analyses and for explanatory studies of migration behaviour. In particular also, the manual pays detailed attention to the applied context in terms of operational data specifications, in terms of sources of data and methods of data collection, and in terms of data processing. Standardized approaches resulting in internationally comparable data and measurements are stressed throughout.



The methods of measurement presented in this manual are, in fact, general: they apply equally to the measurement of other demographic processes, such as mortality and fertility. The manual also includes extensive details on the measurement of such other processes.

The key focus of this manual is on the presentation of methods and materials for actual hands-on application, and for the production of comprehensive, relevant and timely information on migration processes to enable and support evidence-based policy making, planning, monitoring, and evaluation.

It is an essential practical resource book and reference for national and international statistical offices, as well as for research institutes focusing on population issues. It forms the basis of ongoing skills development and structural capacity building programmes in developing countries. And it is particularly suitable to serve as a key text book for undergraduate and post-graduate programmes in demography, population studies, statistics, geography, and urban and regional planning.

*About the author.* William L J Xu-Doeve is a research methodologist, mathematician and demographer with over 30 years of experience in census and survey research, data processing, demographic analysis, modelling and forecasting. In 1982 he was elected to the International Union for the Scientific Study of Population (IUSSP), and he is a leading expert in the field of migration. He has held positions at a range of universities, in areas as varied as physics, econometrics, statistics, demography, geography, development planning, and business studies. He advises governments and the private sector worldwide on strategic management and information technology. His key research interests are in demography, and he is actively involved in structural capacity building programmes in developing countries in data collection and in the production of relevant and timely information on internal and international migration.



ISBN-10:	90-8802-001-9
ISBN-13:	978-90-8802-001-8
Price:	€ 96.50