IUSSP/UNFPA meeting on Applied and Technical Demographic Training in Developing Countries: Towards an Agenda for Revitalisation

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SUMMARY REPORT

Two IUSSP seminars in the last eight years highlighted an impending crisis in training in technical and applied demography in developing countries. The first was the 2001 IUSSP seminar on Demographic Teaching in the Third Millennium held in Rabat, Morocco. The second, held six years later also in Rabat, discussed the data needs required to monitor progress in achieving the Millennium Development Goals. Both meetings noted the plight of demographic teaching, training and research in the developing world. The second meeting also identified reversing the collapse of skills in technical demography as an important aspect of demographic teaching and training that could be addressed by the IUSSP. Despite growing concern and interest in this issue, progress has been slow in arresting the decline in skills in applied and technical demography across the developing world. The crisis foretold in 2001 is an imminent, if not already current, reality.

Against this backdrop, a group of thirty academic demographers and researchers, together with representatives from Central Statistical Offices[1] and other organisations, met at the NIDI offices in The Hague in March 2009 to discuss possible remedies and vehicles for improving the training of technical demographers in the developing world.

The meeting opened with a précis of the problem faced. After the 1994 Cairo Population Conference, national and international attention and funding was

[1] In different countries of the world, national statistical agencies (those tasked with running censuses and the compilation of official statistics) are often referred to as National Statistical Offices, or Central Statistical Offices. The term used for these agencies in this document should be taken as encompassing all such agencies.

diverted away from population and technical demography towards a human rights approach focusing on sexual and reproductive health of individuals. As a result of these changed research priorities, and compounded by concerns about their sustainability, UNFPA withdrew its funding of many demography training centres and university departments across the developing world. Most of these centres have since collapsed, although a very small number have successfully leveraged other sources of funding. Even still, the essential character of the surviving institutions has changed. Now, fifteen years after Cairo, there is a general appreciation that the cohort of technical demographers is ageing rapidly and has not been replaced. Some of the core skills that demographers used to have, and which can be very important in informing public policy and resource allocation exercises, are in danger of being lost. In addition, overseas technical assistance programmes such as those offered by the US Census Bureau, which in the past were able to cover for national shortages in skills have been curtailed or disbanded. Likewise, UNFPA cannot offer technical expertise to all developing countries requiring its help in the areas of census planning, implementation, data collection and analysis. In much of the developing world, and particularly in Africa, there is a very real danger that countries executing censuses as part of the 2010 round may struggle to run their censuses, or to collect, process, analyse and disseminate their data.

There is an evolving consensus that perhaps the "pendulum swung too far" at Cairo, and that some form of redress is both necessary and desirable. While urgent steps are required to address the crisis, the 'golden age' of abundant and ready funding for demography has passed, and proposed solutions cannot presume funding at the levels that used to prevail. Neither the UNFPA nor the IUSSP has the ability to commit significant human or financial resources to long-term projects, especially those that have little likelihood of becoming self-sustaining. While the need for funding of these projects is not in question, the meeting in The Hague had

the specific intent of identifying possible focus areas that might be able to be undertaken under the aegis of the two organisations.

In order to focus on real, practical, implementable and affordable solutions, the agenda for the meeting was split into three parts: the first sought to give an assessment of the state of demographic teaching in the developing world; the second, to define what skills technical demographers should possess; the third, to articulate the conclusions of the first two session into a practicable and implementable plan of action.

I: Assessment of teaching and training in technical demography in the developing world

The IUSSP had commissioned four survey reports covering the state of teaching of technical and applied demography in Asia, Anglophone Africa, Francophone Africa and Latin America. A standard questionnaire was designed and distributed to teaching institutions in the four regions identified as having a population program. Responses from within each region were collated in an effort to draw out common experiences in each region. Response rates to the questionnaire were poor in all regions: it was felt, however, that they were almost certainly biased towards those institutions that saw training in technical and applied demography as important, and/or who were still engaged in this form of teaching. In this sense, at least, it was felt that the responses gave some indication of the extent of demographic teaching across the developing world.

While significant variation in the nature and extent of training of demographers was evident between the four regions, many of the problems alluded to in the introduction were confirmed – both by the responses, and through anecdotal comments on the presentations. The teaching of technical demography is generally haphazard; typically taught by older demographers to dwindling numbers of students who almost invariably lack the mathematical knowledge to truly comprehend what is being taught. Some institutions who replied that they taught some form of technical or applied demography lacked staff with the skills required

to teach the courses that were claimed to be offered. In some regions (e.g. Africa) demand for places on demography programmes appears to be growing but, again, concerns were expressed about the number of applicants lacking the requisite mathematical skills.

Several important points came out of the discussion on the regional presentations: participants were almost unanimous in their assessment that even where students had been taught formal or technical demographic techniques, they were ill-equipped to translate this teaching into practice. The poor mathematical skills of most students in the training institutions was held to be the most significant limiting factor. It was, further, argued that technical demography was a skill that—while aspects of it could be taught in a formal pedagogy—required the serving of an apprenticeship with a skilled technical demographer, but the number of senior technical demographers capable of offering this advanced training is small and decreasing in all regions.

Concern was also expressed at the possible disconnect between research and teaching in technical and applied demography. Given the experiential nature of learning in the field of technical or applied demography, it was argued that research and teaching should really be viewed as different sides of the same coin—that unless one was actively engaged in research into technical or applied demography, one's ability to teach effectively was likely to be constrained.

Doctoral-level training programmes were generally felt to be unviable across the developing world. The programmes, centres, and departments offering doctoral training in demography were typically small, and (in part, consequently) could not attract a critical mass of students to make such programmes viable in the long term.

A paucity of skills even among demographers based at institutions in developing countries was also noted. Many academics and government demographers have not kept their skills current; and the practice of technical and applied demography was increasingly regarded as esoteric in the prevailing funding climate. Medium- to long-term reinvigoration of this aspect of the discipline in the

developing world must also offer ways of improving the skills and training of existing demographers.

Part II: Demand for demographers; new skills or old skills reinvented?

The second part of the meeting sought to identify the skills that demographers should possess in order for the practice of technical and applied demography to be reinvigorated. Not surprisingly, much of the debate centred on what core skills demographers possess that are in demand by users of demographers' skills, and how better to meet users' needs. However, contradictory assessments were given about the nature of demand for demographic skills and for demographers generally.

On the one hand, decentralisation policies in many countries (e.g. Uganda and Afghanistan) have created a need for large numbers of demographers in district and provincial tiers of government to help implement planning decisions and policy. These practitioners are expected to be able to understand, and integrate into policy debates, demographic parameters and projections for small-area populations. Frequently, the data available are not adequate to the task. At the same time, high-level skills in technical or applied demography have been lost at the Central Statistical Offices (CSOs); and many CSOs now lack the skills required to estimate fertility, mortality and migration, let alone perform a population projection, while appreciating the limitations of the data that can be used. In part, this loss of knowledge and skills has been exacerbated with the increasingly wide-spread use of surveys such as the DHS.

In African countries (and possibly elsewhere too), the lack of reliable vital registration systems and the fact that Demographic and Health Survey (DHS) sample sizes are typically too small to allow accurate measurement of adult mortality, or to provide reliable estimates of small-area population dynamics, means that demographic skills should be built around capacity to analyse and interpret census data. The census also typically provides the base for performing population projections, as well as providing the frames from which other surveys (crucially, the DHS) is sampled.

Sight has been lost of the essential nature of the census as a tool for demographers, and there was a generally pessimistic sense of how little demographers were appreciated for the skills within government and the CSOs generally.

Two presentations sought to shift the terrain of debate away from problems governing the supply of demographers to those associated with the demand for demographers (it being argued that the parlous state of training technical or applied demographers was a reflection of a collapsed demand for them). One important factor contributing to the poor demand for demographers was felt to be because demographers were not good at presenting "policy-relevant" results of their work in a way that was accessible to policy makers. An opposing view was that the weak demand for demographers reflected the fact that few people in CSOs and government still appreciated the unique skills that demographers bring to the table – even if they are part of a team. It was argued that demographers had not been good at communicating their abilities and that their skills were being regarded as interchangeable with those of other social statisticians.

Demographers' skills lie in the creation of holistic, integrated and internally consistent population projections; the ability to evaluate the quality of demographic data, and to derive demographic estimates from them. Attention needs to be built around the fact that demographers are not just social statisticians, and to emphasise their comparative advantages.

However, the problem with the search for a demand-oriented assessment of the problem is that this is predicated on the awareness of those who create a demand for demographers of what it is that demographers do. As one participant commented, "the reason that there is not more demand is because demographers don't have a place at the table: people do not know what demography is".

Priority demographic methods and skills

In the context of the preceding discussion, participants reflected on what are the priority demographic methods and skills that are at risk of being lost, and to consider what additional, new, methods and skills are required.

A wide-ranging discussion highlighted the principal concerns regarding priority demographic methods and skills. Some of these are not easily remedied – but it was felt that central to the ability to continue teaching technical and applied demography that students' mathematical and logical skills need attention, along with their writing and analytical skills.

The data collected in censuses in developing countries are frequently both deficient and defective. As a result, skills in forensic data analysis are required. In general, these skills are not taught. Likewise, the last comprehensive volume on technical or analytical demography was Manual X, published in 1983. Since then, there have been important advances in adult mortality estimation (the Generalised Growth Balance and Synthetic Extinct Generations methods)[2]; in the estimation of maternal mortality; in fertility estimation (the Relational Gompertz models); estimation of migration (about which Manual X was completely silent); as well as the technologies for performing population projections that take into account the demographic impact of HIV/AIDS (e.g. Spectrum and ASSA). However, above and beyond simply documenting and describing the more recent approaches to estimation, demographers need to be trained in the assessment of the methods, to understand when the assumptions underlying the methods have been violated, and the circumstances under which different methods are contra-indicated.

Other skills that participants felt might be useful were skills in the statistical analysis of longitudinal data; as well as on the handling and manipulation of large data sets.

[2] A volume on adult mortality estimation covering some of these methods was published by the UN in 2002. However, it has significant typesetting and other errors; and reflects neither on the results derived and presented, nor on the assumptions underlying the methods, or the circumstances where methods may be contra-indicated.

Also, while much of the focus of the discussion was on the training of new demographers, it was emphasised that remedies need to be considered to update and enhance the technical and applied demographic skills of academic and non-academic practitioners in developing countries.

Barriers (largely technological and financial) to competent practice, such as the implications of poor internet connectivity, inadequate access to current academic literature, and the cost of current statistical and demographic software, were discussed.

Additional training in other disciplines

A second part of the debate focussed on whether demographers should develop competencies in disciplines closely allied to demography, such as economics or biostatistics.

Two opposing views emerged from a discussion on whether demographers should develop competencies and skills in allied disciplines. The first held, as Ron Lee had suggested a decade ago, that the field of demography has widened over time becoming more akin to a doughnut without a centre. As a result, the core skills which define a demographer were being eroded and lost. The second view held that demographers should, in addition to the mastery of core skills and knowledge, develop high-level skills in another field, thereby allowing a wider range of skills from other disciplines to be brought to bear on demographic problems and integrated into demographic analysis.

Some disciplines are more easily integrated into demography, economics and biostatistics being the obvious two, while others are cognate but have epistemological frameworks further removed from demography (e.g. spatial analysis using GIS) and would thus prove harder to master.

While there was a broad agreement that the ‘demography-plus’ approach was desirable, many participants had concerns relating to spreading the discipline too thinly with a concomitant risk of further undermining the discipline. Already, some

participants argued, even a 2-year Master's programme does not provide enough time to cover the core material in depth, let alone anything other than a superficial coverage of ancillary material from other disciplines.

It was felt, also, that technical and applied demography requires a strong mathematical and statistical background to be distinguished from other population sciences. Creative thought is required to think of innovative ways of bringing more of these students through our training programmes in order to bolster the supply of numerically and quantitatively strong demographers.

While a few training programmes could (and should) persist with a single-minded focus on technical and applied demography, participants agreed that most demographic training institutions would be better served by developing expertise, or instituting joint programmes, in demography and another quantitative discipline. In general, the participants agreed that demographers need to be able to draw on insights from other disciplines, especially biostatistics/epidemiology and economics; but that these should not detract or override the core skills of demographers.

Based on the first two parts of the programme, the following activities had been suggested to address training that might fit within the scope of the UNFPA and the IUSSP's possible interventions:

1. To prioritise a process of updating the Manuals used to assist in the preparation and production of census reports. Specific projects within the scope of this challenge would include
    a. Rewriting Manual X to make it more up-to-date, and to include newer, state-of the-art methods;
    b. Preparing training modules on technical demography;
    c. Greater emphasis on interpretation and validation of the results generated; and
    d. how to assess and evaluate the quality of demographic data, including training on handling and manipulation of large data files.
2. To encourage the development of modules for demographic analysis and estimation in *R*; an open-source, free, modularised statistical

software package; and to promote the use of R as tool for statistical analysis.
3. A centralised wikipedia-style documentation of census and survey data, providing researchers insights into what aspects of the data might be problematic; findings etc.
4. Promotion of SDMX-type standards for data exchange to avoid the problems of portability of data and its attendant negative implications for fostering collaborations between institutions that use different platforms and software.
5. Continuing professional development of CSO staff and academic demographers through short courses; internships; training exchanges etc.

Part III: Possible vehicles to address the problems

Over the course of the final afternoon and the following morning, participants discussed several possible vehicles that might be suited to addressing the problems identified in the first two parts of the meeting. Invited speakers led the discussion with prepared inputs on short course training workshops; web- and distance-based learning approaches; regional demographic training centres; research consortia and sandwich doctoral training programmes.

While there was general agreement that most of these vehicles certainly had their place in a comprehensive strategy for reinvigorating demography and the teaching and training of technical and applied demographic methods, few were deemed suitable for the kind of intervention envisaged by the IUSSP and UNFPA.

Thus, for example, sandwich doctoral programmes partnering developed and developing country institutions were agreed to offer (at best) a short- to medium-term solution to the training crisis, but these could not be sustainably replicated across the developing world in a time- or budget limited fashion. Similarly, research consortia of the type being pursued by APHRC through its CARTA initiative might offer a more balanced training profile for doctoral students and the possibility of achieving a critical mass, but the idea is in its infancy and the kind of investments required are significantly more than could be undertaken by the IUSSP or UNFPA. Short courses, again, were relatively expensive to run, and

can only reach a relatively small number of people at a time. However, they were felt to be useful – particularly at a national or regional level.

Regional training centres (such as IFORD and RIPS) were felt to be the survivors of arrangements made a long time ago when there were even fewer demographic training institutions in Africa than there are now. And, while IFORD has largely maintained its international character, RIPS' student body is mostly Ghanaian. No participant argued for the establishment of new regional training centres, although there was a strong concurrence that academic and research institutions in the same region should seek to collaborate more closely, and for each to be strengthened and supported thereby.

The preparation and production of distance-learning material was put forward as one approach to disseminating current state-of-the-art techniques and approaches as widely as possible. While expensive to set up (from start to end, the cost of preparing and producing teaching material approaches £1 000 per learning hour) web-based learning would be able to offer a standardised teaching platform and a resource to both novice and experienced demographers. It would be hoped that teachers and senior demographers would first familiarise themselves with the material, and then be able to teach from it and integrate the material into their own teaching programmes. There was some discussion as to whether this learning would be certificated: the conclusion reached was that no central institution would offer accreditation for completing the modules; but that if individual institutions wished to use the material for their own teaching, this would not be a problem.

Conclusions

There is a need for master's level training that covers the core demographic techniques plus additional training in cognate disciplines (such as biostatistics or economics). Some institutions may choose to remain dedicated to developing capacity and skills in technical or applied demography, but this model cannot be the norm. There is a need for consortia to link CSO and research institutions

(academic or not). We may need to bolster the skills of existing CSO staff and academics through distance learning or short courses.

However, it was agreed that under these circumstances, the first two projects mentioned above should be explored and delineated further. Updating and revising Manual X with a focus on census analysis and develop training modules in technical demography that could be delivered via the internet or CD- Rom (similar to internet courses developed by LSHTM) that could be used for stand-alone training or more likely used by teachers in the south as tools to better teach advanced technical demographic skills.

To start things off, the IUSSP would convene a small panel that would think through what was need to carry out these two activities and draw up a terms of reference – one for each activity. The panel is likely to meet in June 2009. The Terms of Reference would be disseminated through a Call for Tender by the IUSSP - asking institutions to submit a proposal and budget. The Terms of Reference so developed will most probably form the basis for a funding proposal to UNFPA and other potential funders and donors.

The proposal to develop these two activities was supported by most participants, with the appreciation that these activities are those most likely to be able to implemented within the scope of the funding available from UNFPA (no hard figure was given, but it was felt that these would be affordable).

Evidently, such small steps will not be sufficient in and of themselves to halt the decline in technical and applied demography in the developing world: the other recommendations, activities and projects mentioned at this meeting all have their roles to play and efforts must be made to increase their chances of positively impacting on the training and reskilling of demographers in the developing world.

Tom Moultrie

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