Reviewer’s report

Title: Forecasting nursing professions: Impacts of occupational mobility and employment structure in Germany

Version: 2 Date: 17 September 2012

Reviewer: Claudia Maier

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1 Major compulsory revisions

The article is primarily relevant for workforce planners and projectors in Germany but also of interest to other countries using LFS data. In light of an increasingly ageing population, birth rates declining, the workforce itself ageing (baby-boomers) and a lack of evidence on the future development of morbidity with prolonged life years, (3 scenarios: “expansion of morbidity”, status quo or “compression of morbidity” – the article only mentions 2) this article is timely and relevant for decision makers in Germany and other countries on the scale of projected shortages and policy options to counteract projected developments.

However, the article faces major conceptual, methodological and terminological limitations that need to be addressed before it is publishable.

1.1 Theoretical model

It is unclear which broader, underlying theory the article follows in terms of driving forces on supply and demand. There are a multitude of different models, e.g. examples include WHR 2006 report, e.g. Figure 2 or Figure 3.3 http://www.who.int/whr/2006/whr06_en.pdf or a simple stock-flow model, see Figure 1 in http://www.healthworkforce4europe.eu/downloads/7._Nursing_Futures_report_2008.pdf for instance. The article should refer from the outset which model it followed and why (including how it was conceptualised for the purpose of the analysis).

1.2 Research question

The research question is clear and relevant, however the methodological approach does not take all potential factors into consideration (see below).

1.3 Method

The methods section requires substantial revisions, particularly

a) a more detailed description on the LFS, e.g. on representativeness (e.g. is it representative for nurses in Germany but also the subgroups nursing assistants and geriatric nurses?), coverage levels, which relevant indicators covered, missing values, data collection methodology (self-reported/ by head of household? One-off interview questions or follow-up cohorts, etc)
b) On the supply side,
- first a short description of the 3 categories of nurses and minimum educational requirements is needed (e.g. Nurse with 3 years diploma, nursing affiliate/assistant completing 1 year training and geriatric nurses with 3 years education) to provide the non-German audience some indications on educational levels;
- what is defined as unskilled and semi-skilled (e.g. few weeks/months training course?) nursing professions - where are the boundaries to nursing professions listed above?
- not all (potentially) influencing factors were included or considered for inclusion in the model (if the latter -> discussion/limitations section), e.g. international mobility (to and from Germany both affecting the size of the nursing workforces), the ageing of the nursing workforce itself and projections for different scenarios (increasing morbidity, status-quo, compression of morbidity), returners (from abroad, from other sectors, from time-off at home, why the East-West divide but no other regional assessments although nursing workforces usually face regional maldistribution, particularly in rural/urban areas

c) On the demand side, more detailed information is required on the number of hospitalisations and long-term care used for projections and their completeness, e.g. do data cover only cases in public facilities or include private clinics/private health insurance cases? Only two scenarios were considered, the status-quo and the „compression of morbidity“ (please revise the term and provide relevant references, e.g. James Fries seminal work), however, often three scenarios are discussed in the literature: the „expansion of morbidity“ (in line with a larger cohort ageing), the dynamic equilibrium („ageing but with better health – thus status quo) in addition to compression of morbidity. Why were only 2 scenarios included in the projections?

1.4 Results

a) Add a (short) descriptive analysis of the 2005 supply situation of the (i) qualified nursing workforces and the (ii) unskilled and semi-skilled workers is important, e.g. in terms of total numbers, in which sector they were working (hospital, nursing homes, ambulatory care), age, sex, full-time vs part-time employment

b) Same issue, add a (short) descriptive analysis on the supply side, e.g. how many acute cases in 2005, how many long-term care cases in nursing homes, ambulatory care, etc

c) Please clarify the results regarding unemployment: page 6 stipulates that the FTE of employed and unemployed nurses was calculated (but unknow how many nurses were unemployed in that year?) and subsequently, the results section suggests a shortage of nurses already in 2005 if only the professional nurses were considered, this requires more explanation (e.g. regional disparities?)
d) Then followed by the different scenarios and more details on how they were calculated

1.5 Discussion/Conclusion

a) There is no discussion and the conclusions are very short and need to substantially strengthened. The model, its strengths and limitations (e.g. which factors were included, which could not be included) need to be discussed, why this model was chosen over others – and a discussion of results with those of other projection models/conceptual models relevant to health workforce forecasting, see some references (not exhaustive) below. Moreover, the qualification level of nurses (vs. Semi- and unskilled workers) and the staffing levels (e.g. per ward/nursing home) have considerable impacts on the quality of care – one important aspect to be included and discussed.

WHO Models and tools for health workforce planning
UK – nurse projections, different scenarios
RN4CAST
http://www.rn4cast.eu/

b) The conclusions should be revised, they only focus on 1-2 options for policy-makers while there are several others missing (e.g. attracting more young people (also more men) into nursing with better career development perspective, reduced work load (emotional stress, e.g. end-of-life care, work with dementia, etc), attracting back those who did exit their profession to other sectors, active recruitment of nurses from abroad, already happening but unclear to which extent
http://www.spiegel.de/wirtschaft/soziales/fachkraeftemangel-bundesagentur-umwirbt-arbeitslose
the request to shorten training periods for geriatric nurses
, re-training elderly/unemployed (but impacts on quality of care)

2 Minor essential revisions

Terminology used

b) It is recommended to check the terminology used with a native speaker and revise the entire article in terms of language and style.

Please revise the terms used and/or provide a short definition of what is meant with the following terms used:

- occupational mobility / flexibility (do you mean „exit from the
profession/attrition”), trained nurse (3 years training or also including 1 year training?), untrained workers (exact definition? No training at all or very short training periods, e.g. one-week training?), falling-treatment rate – please use the correct term „compression of morbidity“, employment behaviour (unclear – better to use full-time and part time employment),

3 Discretionary revisions
If feasible, it would be very interesting to revise the demand side projection models, including a more complete set of indicators (see above) but depending on availability in the dataset, also for further work a cross-country analysis and projections would be highly desirable for the European Union as a whole due to the inter-connectedness of labour market and free movements of people, including nursing personnell.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests.

Please note that there is no affiliation whatsoever between myself and the author of the article, it is a coincidence that we share the same family name (Maier)