

## QUALITATIVE AND QUANTITATIVE FORECASTING METHODS IN HEALTH WORKFORCE PLANNING

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Largely, each forecasting method can be linked to qualitative or quantitative methodologies. These needn't be exclusive: despite a history of perceived incompatibility of both strands within the sciences, recent scholars have argued for an integration of methods where appropriate (Onwuegbuzie & Leech, 2005). Instead, both strands deliver tools that can be used in health workforce policy design.

Health workforce planning can equally profit from an integrated approach. Planners and policymakers are confronted with a decision-making process that requires input on a number of issues: be it forecasting of the future workforce and future patient populations, elicitation of stakeholder perspectives on health workforces, or conducting analyses on the current situation.

Workforce planning occurs in a complex system based on societal realities, and individual aspects of the system may need different tools, or methods, to be adequately understood. Good policy requires those making decisions to be informed, innovative, and thorough in both design and assessment. But what exactly is understood when we talk about qualitative and quantitative planning and forecasting approaches? Qualitative data basically refers to “data that do not indicate ordinal values” (Guest, Namey, & Mitchell, 2013; Nkwi, Nyamongo, & Ryan, 2001).

### Quantitative methods in health workforce planning and forecasting

When planning the future workforce, policymakers need information: on the current workforce, including such details as headcount, full-time equivalents, tasks and productivity. This type of information usually comes in numbered form: behind these numbers are persons working, hours worked and tasks completed. Which planning tools can these quantified data be used for? An assessment of the current situation could include the distribution of the workforce and of disease patterns. Models for projecting supply and demand require numerical input and deliver a numeral output about hours to be worked, persons to employ or patients requiring care. Similarly, gap analyses rely on quantitative comparisons between care provided and care desired. Also, monitoring and evaluation approaches can investigate and contrast numerical goals and actual effects of planning approaches.



**ADVANTAGES OF QUANTITATIVE PLANNING METHODS**

**DISADVANTAGES OF QUANTITATIVE PLANNING METHODS**

INTERPRETING CORRECTLY QUANTITATIVE DATA ALLOWS THE KNOWLEDGE THE CURRENT SITUATION AND CAN SHOW THE “BIG PICTURE” OF AN ISSUE WITHIN HEALTH WORKFORCE PLANNING: FOR INSTANCE, NUMBERS IN A PROJECTED SUPPLY GAP HIGHLIGHTS A SKILLS GAP IN THE FUTURE WORKFORCE.

QUANTITATIVE FORECASTING REQUIRES INPUT OF PARAMETERS AND RELIES ON THE QUALITY AND QUANTITY OF AVAILABLE DATA. THIS IS LIKELY TO BE AN ISSUE WHERE ONLY CERTAIN TYPES OF DATA ARE ROUTINELY COLLECTED AND SO PROXY DATA MAY OFTEN BE USED.

IF ROUTINE DATA ARE AVAILABLE, INFORMATION CAN BE GATHERED RELATIVELY EASILY AND CHEAPLY.

DESCRIPTIVE QUANTITATIVE APPROACHES ARE UNABLE TO ANSWER WHY FEWER PERSONS CHOOSE A PROFESSION OR MORE PEOPLE MOVE ABROAD TO WORK. THIS MIGHT IMPEDE THE POLICYMAKING PROCESS.

EXPERIMENTAL APPROACHES, FOR EXAMPLE TO EVALUATE POLICY, MIGHT EVEN CONTRIBUTE TO EFFECTIVENESS OF INDIVIDUAL POLICY MEASURES.

IF PRIMARY DATA IS REQUIRED, THE COLLECTION PROCESS CAN BE LENGTHY.

THE UNCERTAINTIES INHERENT TO FORECASTING MAY ALSO BE QUANTIFIED, RESULTING IN CHALLENGES IN HOW TO PRESENT THIS INFORMATION TO DECISION-MAKERS.

IF ALL INVOLVED ARE FAMILIAR WITH STATISTICAL LANGUAGE AND METHODOLOGY, NUMERICAL DATA CAN BE COMMUNICATED EASILY. STANDARDIZED NUMERICAL DATA MAY ALSO ALLOW FOR COMPARISON BETWEEN SECTORS, REGIONS OR EVEN COUNTRIES AND THUS MAY THEN BE USEFUL FOR BENCHMARKING.

*In short, quantitative data and methods are particularly useful for:*

- *Models for projecting or forecasting;*
- *Data for assessing the past and current situation;*
- *Gap analysis;*
- *Monitoring and evaluation.*

Qualitative methods in health workforce planning and forecasting

In principal, most qualitative research methods might also be used in health workforce planning. Among the most common qualitative methods are semi-structured or narrative interviews, focus groups, document analyses, and qualitative scenarios (Given, 2008).

*Why collect and analyze qualitative data for workforce planning?*

Some information is difficult to obtain with quantitative data collection methods: which supply and demand factors are most important for a particular workforce? What are the

challenging scenarios that could impact on supply and demand? Which influences drive a medical student to choose a specialty? At what stage in their illnesses do patients seek their physicians, and how far are they willing to travel for a consultation? Or: what makes a position abroad attractive for some nurses but not for others? These questions cannot be answered by quantitative data as they depend on in-depth information about values, thought processes and lived experiences. Views of professional stakeholders might be of special interest for the planning process: where collaboration is required, it may be necessary to understand aims and motivations.

Qualitative approaches provide a useful forum for gathering knowledge on issues that the planners themselves were possibly not aware of, knowledge that a structured survey might not ask about. Qualitative data may also provide the information that used to develop narrative scenarios.

| ADVANTAGES OF QUALITATIVE PLANNING METHODS  | DISADVANTAGES OF QUALITATIVE PLANNING METHODS   |
|---|---|
| <p>QUALITATIVE DATA COLLECTION CAN BE A PARTICIPATORY PROCESS.</p>  | <p>USUALLY NOT MUCH ROUTINE DATA AVAILABLE AND PRIMARY DATA COLLECTION CAN BE LENGTHY. DEPENDING ON THE KIND OF INFORMATION ONE IS INTERESTED IN, ETHICAL CONSIDERATIONS MIGHT NEED TO BE TAKEN INTO ACCOUNT.</p> |
| <p>THEY CAN BE USED TO GATHER INFORMATION AND TEST QUANTITATIVE INSTRUMENTS (SUCH AS SURVEYS) SO THAT MEANINGFUL QUANTITATIVE DATA IS COLLECTED.</p>  | <p>COMPARABILITY IS LIMITED.</p>  |
| <p>THEY PROVIDE CONTEXTUAL INFORMATION ON SUPPLY AND DEMAND FACTORS AND SOURCES OF DATA WHICH CAN BE USED TO ENHANCE WORKFORCE PLANNING MODELS, AND ALSO ON BROADER ISSUES SUCH AS MOTIVATION, AIMS AND EXPERIENCES THAT CAN BE USEFUL FOR RETENTION, RECRUITMENT, OR SIMILAR POLICIES.</p> |   |
| <p>IT ALLOWS AN EXPLORATION OF MORE THAN ONE ASPECT OF AN ISSUE IN DEPTH.</p>   |   |



*In short, qualitative approaches are particularly useful for:*

- *Methods to assess the current situation through stakeholder elicitation;*
- *Understanding needs for the future and forming scenarios;*
- *Gathering information on reasons and motivation;*
- *Monitoring and evaluation.*

### The best of both worlds? Integrating quantitative and qualitative methods

Both qualitative and quantitative approaches to health workforce planning have advantages and disadvantages. Individual methods should be chosen based on specific aims in the planning process and the context of the environment where they are to be applied.

Where can they be linked? One example for an integrated approach is scenario-building. Scenarios have been defined as “description[s] of a possible and plausible future situation” (CfWI, 2014:6)<sup>(48)</sup>. These future situations are created with stories targeting uncertainties in future developments. The key here is plausibility: how do we decide what is plausible in the future and what is not? In this case, qualitative methods such as expert elicitation, focus groups, stakeholder interviews, workshops or document analysis, among others, may be used to synthesize information about the present and develop narratives about the future. This is especially important as underlying assumptions as part of scenario generation shapes the plausible futures developed: future estimates are sensitive to both numbers and expected paths that are put into the model (Costa-Font et al., 2007).

Assumptions therefore likely influence which policy levers to target in order to arrive at a desired future outcome. Methods to quantify uncertainties in the scenarios increase the quality of results through the ability to understand the scale of potential issues and their relation to health workforces. Quantified scenarios are therefore a useful example of an integrated approach.

Yet challenges to the combined use of quantitative and qualitative planning methods remain. The two approaches require different expertise: if an integrated approach is desired, the necessary experts in each methodology need to be recruited or trained.

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(48) For a detailed description of scenario development in workforce planning, see the publication by the UK Centre for Workforce Intelligence (CfWI, 2014).



Qualitative data is often confronted with skepticism among quantitatively trained personnel; awareness raising about the strengths of each could be helpful in these situations.

Within qualitative expert elicitation, additional challenges include how to understand the different perspectives of stakeholders included in interviews or expert panels, and the context-specific results that are not easily generalised. On the other hand, the use of routine data collected for purposes other than planning has its own drawbacks: data generated for a different use may not adequately fit the questions they are supposed to answer.

Reflexivity needs to be a central aspect of any data collection and analysis, in both quantitative and qualitative planning. Are we using the methods correctly? Which conclusions are we drawing from the gathered information? Do our planning approaches fit the planning goals? Such questions should be an integral part of the planning regardless of the approach or methods used. Careful choice of planning approaches and ongoing reflexivity and challenge can contribute to higher quality health workforce planning and outcomes.

#### *In short:*

- *Integration of qualitative and quantitative methods in workforce planning is desirable;*
- *Scenario generation for estimating future supply and demand relies on a structured qualitative method, and quantifying scenarios allows these plausible futures to be projected;*
- *Examples from both methodologies can be found in this Handbook.*

#### For further information

- *D061 - User guidelines on qualitative methods in health workforce planning and forecasting available at*
- [http://euhwforce.weebly.com/uploads/2/3/0/5/23054358/jahwf\\_d061\\_user\\_guidelines\\_on\\_qualitative\\_methods\\_approved.pdf](http://euhwforce.weebly.com/uploads/2/3/0/5/23054358/jahwf_d061_user_guidelines_on_qualitative_methods_approved.pdf)

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