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Evidence-Based Scientific Policy Advice*

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Abstract

While policy measures affect the welfare of nations, the practice of policy advice is determined by complex rules. Evidence-based scientific policy advice gives weight to hard empirical facts and restrictions. The lecture discusses challenges and conditions for success and provides suggestions to improve the implementation of such a strategy

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Evidence-Based Scientific Policy Advice

It is by no means a new concept. Over the centuries, it has found its way – at least for a while – into government decision-making around the world: evidence-based policy making. But the precise role of this concept is neither stable nor undisputed. In the complex political process, it has to prove itself time and again. Despite its success, evidence-based policymaking has not secured a permanent place in the political arena. Case in point: German labor market policy, which has again steered away from its evidence-oriented approach towards politically more convenient solutions.

Successful policy advice provided by independent science needs adequate working conditions. It requires open data access, internationally competitive scientific expertise, and policymakers who are willing to engage in a dialogue. The concept assumes that there are well-defined and transparent goals of society which can – and should – be efficiently achieved with an appropriate allocation of resources for the benefit of all. This requires a sustainable policy approach based on at least a medium-term strategy.

In practice, policymaking is often a day-to-day business characterized by tough struggles for compromise. It is about finding the right balance of interests in mostly distributional matters. Those policy advisors who are immediately involved in this process are not usually academic scientists. Even if they have an academic background – or have only temporarily left an academic position, as in the case of the U.S. Council of Economic Advisers – they are nonetheless an integral part of the political system. The role of a policy advisor alone, regardless of academic expertise and previous achievements, does not make that person a scientist.

Scientific policy advisors publish in academic journals

Scientific policy advice is, by definition, reserved to academic scientists – people who contribute to the scientific generation of evidence. Typically this is done by publishing articles in peer-reviewed academic journals. Policy advisors who do not publish such contributions cannot be regarded as scientific policy advisors.

Scientific evidence, in turn, can be defined as the rigorous presentation of statistically supported results. It consists of analyses that show, according to widely accepted standards of the discipline, which policy programs work – and which ones don't. In practice, however, evidence-based policymaking finds itself opposed to what may be called "policy-oriented evidence making." The transition from the latter to the former is often difficult. Commissioned research, in which evidence only evolves at the demand of policymakers, is not per se questionable. What matters is the independence of the advice, the adherence to strict scientific ethics rules and standards, and the existence of scientific competition and rigorous peer review, which serves to strengthen and guarantee the robustness of the results.

The relationship between policymaking and scientific advice is not free of tensions. Scientists sometimes get the impression that their findings are ignored or even misused for political purposes. Policymakers, for their part, often regard scientific advice as unrealistic, or as coming too late for their time-driven agenda. Nevertheless, there is a widespread view that scientific policy advice can help improve the welfare of society through better political decisions. In Germany, for example, the National Academy of Sciences "Leopoldina", one of the world's oldest institutions of its kind, has the central task of providing independent policy advice, which bears witness to the relevance of this view.

In providing scientific evidence, researchers face a number of challenges:

- Findings of scientific studies are often not immediately relevant or usable to politicians.
- Evidence generation needs time, qualified scientists and independent research.
- Researchers who want to be regarded as scientists must publish their results in journals, facing academic competition and peer review, and they must adapt the highest quality standards. This also takes time.
- "Policy-based evidence making" through commissioned research may lead to the generation of results according to the political motives and requirements of the contracting authority. This would likely distort the evidence.
- In many cases, it is questionable whether the data needed for the analysis are suitable in terms of quality and (timely) accessibility.
- Likewise, it may be questionable whether the available methodology is sufficiently powerful to obtain robust conclusions on causality and the effectiveness of policy programs. The need for independent scientific evaluation is still too often ignored at the time of program implementation.

Data access determines the quality of evidence-based policy advice

Data access is always the key to successful evidence generation. In many cases, suitable data that would be needed to answer a particular policy question are not available and have to be produced first. And even if the data already exist, access to them is often tedious because high legal barriers must be overcome, particularly for official data. This makes the process of scientific policy advice considerably slower and more difficult. A critical point in this context is the desire for data retention: While this is an extremely controversial issue in the public debate, scientific policy advisors wish to work with appropriate data already beforehand (e.g. as scientific use files), or they want to have them as soon as they are asked to provide answers. At the very least, they wish to reach an immediate agreement on electronic access to the data through the internet.

In recent years, the research data centers that have been established around the world have made substantial progress in facilitating access to sensitive data. However, remote data access options are still very limited. Ideally, specialized scientists should be able to work online with confidential key datasets from anywhere in the world without having to go through complex procedures. This is already possible using the **JOSUA** software developed by IZA's International Data Service Center (IDSC). Refined to meet all legal data protection requirements, this remote processing tool has been implemented in a certified environment by the Research Data Center of the Institute for Employment Research (IAB) of the Federal Employment Agency in Nuremberg.

But we are still far away from realizing the vision of a "virtual visitors program" for the research data centers. Substantial progress at much higher speed is needed, not least to meet the growing demands and complexity of political practice and the high quality standards of scientific research.

Prerequisites to good scientific practice in policy advice

Typically, academic science is not immediately focused on policy advice. As a consequence, the evidence published in the form of scientific studies rarely fulfills the usability requirements of policy advice. In many cases, research findings have to be "translated" and made "transparent" to policymakers. To this end, scientific studies must meet certain criteria which – given the standard practice for scientific articles – are anything but self-evident:

- The findings must include statistical tests that allow an assessment of whether and why policy interventions are effective.
- Counterfactual analysis is the key ingredient: What would have happened in the absence of a policy intervention? This non-trivial task requires information on the behavioral responses of control groups that are unaffected by the policy program in question.
- It must be possible to quantify the effects, e.g. through elasticities, to allow an evaluation and a comparison of the observed magnitudes.
- In addition to the direct effects of a policy program, the indirect effects must be taken into account as well.
- Selection problems and other causes of statistical bias in the analysis must be identified and controlled for.
- Sensitivity analyses must be performed, and the results must be replicable.
- In terms of language and wording, the studies should be written in a way that is understandable not only to a small expert audience.

IZA offers various products and formats that provide the basis of the institute's independent advisory activities and serve as tools for concrete scientific policy advice. In addition to various publication outlets and journals targeted at different audiences, the IZA Evaluation Dataset offers a unique combination of official and survey data, while the ambitious IZA World of Labor project explicitly aims to be an independent service provider for evidence-based policymaking by condensing the available state-of-the-art knowledge on key labor market issues in a practical format and deriving policy recommendations from the existing evidence (see IZA Compact, May 2014).

Policy design follows its own rules

Scientific policy advisors need to keep in mind that politics is about the perception of interests and the balance of these interests. Consequently, it is primarily about distribution and redistribution. Efficiency, in the sense of increasing welfare through the accumulation of goods, has a much lower priority in the process of allocating economic resources. Politicians like to ignore economic constraints, although this is impossible to keep up in the long run and may even be counterproductive to the planned intervention.

Politics is ultimately the design of compromise. Political progress therefore often entails taking some steps back. Pushing through a "good" proposal is a matter of give-and-take that usually requires the acceptance of another "bad" measure in return. In many cases, decision makers are not sufficiently aware of all the side effects that the agreed compromise may have.

Politicians do not always act out of conviction, but sometimes also out of selfish motives. Very few of them are open to rational arguments at all times. They are rarely willing to tie their political survival to a particular policy issue. Politicians have the difficult task to channel opinions in a way that will generate majorities, and to recognize a new trend early enough to become its harbinger.

This implies that active policymaking is short-term oriented and volatile. With the next election constantly looming on the horizon, the window of opportunity for political action is often limited to the first post-election year. The decisions made in the first year are then implemented in the second year and advertised in the third. The fourth year is again dominated by the election campaign. Long-term challenges, therefore, are often procrastinated up to a point where they become inevitable and require a short-term fix.

Summing up the above, evidence-based policy advice that is long-term oriented, sustainable, transparent and focused on efficiency gains is not in the immediate interest of practical policymaking. This is why it does not come natural to politicians to adapt and implement evidence-based advice. It is understandable that they tend to listen to scientific advice mainly in times of economic distress.

Against this background, evidence-based scientific policy advice should follow the universal Scout motto: "Be prepared!" In other words, long-term scientific research should ideally be designed so that the evidence is already available at the very moment the topic becomes politically "ripe". By contrast, there is little chance for the scientific community to provide enough hard scientific evidence on a particular research topic to determine the political process.

A more promising approach to instill political interest is to talk about key empirical evidence in the media. Indirect policy advice through the press can be more effective because it reaches people in the

immediate environment of policymakers and may then enter the political process literally through the back door.

Policymaking is experimenting with the truth

The political environment must be open and inviting to policy advice. Unless this precondition is met, evidence-based policy advice is doomed to failure and loses its agents. The best way to avoid this is to set up a proper legal framework and adequate institutions. For every policy program it should be made a legal requirement to undergo independent scientific evaluation prior to implementation, as well as a regular review of its effectiveness after implementation. New policy initiatives should first be tested in appropriate field experiments before they are introduced across the board for an explicitly specified period of time. This also implies that the legal restrictions on the retention of data, including social data, for research purposes must be loosened.
Policymaking is experimenting with the truth. The effectiveness of policy measures must be constantly evaluated in order to be able to correct or adjust them over time if they prove to be ineffective – or not sufficiently cost-effective.

One might, of course, argue that narrow evidence-based policy analyses are inherently incapable of addressing complex, content-rich and value-laden issues that are negotiated by diversely acting individuals, political parties and interest groups. This may be true – but evidence-based policy advice should not ever claim the opposite anyway. In fact, scientific advisors should keep out of the detailed issues of practical policy design, or else they should cast off the mantle of science altogether.

Scientific advisors need not contribute actively to policy design. From the policymakers' perspective, internal advisors who are an integral part of the political system may seem more effective. But they are advisors-turned-agents. Scientific advice must come from outside, lest it loses its independence. Scientists can, of course, be internal advisors or even politicians. But then they are no longer scientific advisors.

Evidence-based scientific policy advice is the elaboration of options for politicians, who must ultimately make their own decisions. This is a burden that scientific advisors cannot take off politicians – and they should never claim they can.

The empirically founded mainstream of a discipline must dominate policy advice, even if this seems to contradict the notion of scientific competition – and certainly displeases the entertainment-demanding media. After all, every ambitious scientist is inclined to view the mainstream critically and propagate his own vision. Media and politics want to appear not only balanced, but even "politically correct". As a result, marginal positions and findings often receive too much public attention. Striking a balance should not be the maxim of evidence-based scientific policy advice. It is all a matter of how strong the empirical basis of a political strategy or measure is.

What is considered empirically proven within the discipline cannot be undermined by individual opinions or beliefs from either direction. It can only be refuted through scientific progress.

The role of transparency and ethics

Evidence-based scientific policy advice is based on a thorough analysis that meets the standards of the discipline. Advisors must be scientists who publish their results in peer-reviewed journals. This is the only way to ensure that they are in close touch with state-of-the-art research. The advice itself must not only be independent, it must also be based on independent prior research.

Data sources must be properly documented and openly accessible so that the results can be reproduced and verified. Replicating empirical results should not be regarded as scientifically inferior. The current situation of restricted access to key data for research purposes is scientifically unacceptable and runs counter to the ethos of science. An equally unacceptable requirement is that official data used for research must be erased at a specified point in time. This also prevents subsequent reviews using newly developed methods.

Transparency must also apply to any conflicts of interest of the scientist as a policy advisor. All actual and potentially relevant conflicts of interest must be fully disclosed. However, it is not always clear whether a conflict of interest indeed exists, or under what circumstances it may become relevant. After all, there are various different forms of potential conflict – ranging from financial to political or even religious issues. While the recent financial crisis has sharpened our perception of financial conflicts of interest, the other causes of conflict are at least equally important.

Actual conflicts of interest pose a problem to every scientist who claims to conduct independent research. The logical consequence is to abandon any advisory activities that may cast a doubt on the scientist's independence and legitimacy. Potential conflicts of interest, on the other hand, are not per se an immediate problem. They are difficult to avoid in practice and may occur rather frequently. What we need is clear rules on how to make these potential conflicts adequately transparent.

The self-commitment of independent research to these principles of scientific integrity, such as the "IZA Guiding Principles of Research Integrity" to which all IZA network members are committed, is indispensable to preserve its role as an independent body for the provision of policy advice. There are vast policy challenges ahead of us – ranging from demography, family, pensions, health and social justice to environment, energy, transportation, urban and rural infrastructure. It must therefore be hoped that policymakers in Germany, and beyond, return to a closer collaboration with independent science to ensure a critical and objective evaluation of policy initiatives.

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Figure 1