


Policy Researcher and Policymaker; An Investigation into Factors Affecting the Effectiveness of Policy Research in Governmental Science Policies in Iran

Maghsoud. Farasatkah¹  Reza. Maniee^{2*} 

¹ Professor, Department of Planning in Higher Education, Institute for Research & Planning in Higher Education, Tehran, Iran

² Assistant Professor, Department of Futures Studies in Higher Education, Institute for Research and Planning in Higher Education, Tehran, Iran

* Corresponding author email address: r.maniee@irphe.ac.ir

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ABSTRACT

The Global Knowledge Index report indicates that Iran's ranking in certain indicators, such as higher education system inputs, knowledge capital, and research output, is relatively average. However, its ranking in outputs, particularly the ultimate impact of research, is among the lowest globally. The aim of this study is to identify the factors influencing the effectiveness of policy research in the decision-making and policy-making processes of science and higher education. A quantitative survey method was employed to test the hypotheses. A proportionate random sample was selected from faculty members and researchers in six policy research institutions in the field of science, research, and technology. Kaiser-Meyer-Olkin and Bartlett's sphericity tests were conducted, followed by factor analysis with varimax rotation, structural equation modeling, and importance-performance map analysis. All but the second hypothesis were confirmed. The researchers' status, in terms of "emigration, marginalization, or active residence," was related to the "structure and behavior of the government in the field of science, the independence of the academic institution, and the freedom of researchers, as well as decentralization and depoliticization." Three categories of interventions—"1. managerial and organizational, 2. interactive, and 3. researcher-driven interventions"—influenced their research strategies and tactics. These strategies and tactics, in turn, affected the "effectiveness of research both in public policy-making for the government and in the discursive and social impacts of science." Significant differences were observed between men and women in terms of whether these interventions were "interactive" or involved "knowledge re-creation" and a "critical and socially responsive approach." Some generational differences were also observed in the effectiveness of research. Researchers whose strategies primarily involved interaction with the scientific community differed significantly in terms of effectiveness from those who interacted with a larger society. Various policy recommendations were provided.

Keywords: Scientific policymaking and higher education, the effectiveness of policy research, immigration, active residence, researchers' strategies, types of improvement interventions.



Introduction

This study explores the factors influencing the effectiveness of policy research in the context of Iran's science and higher education policy-making system. According to the Global Knowledge Index, Iran performs moderately in several areas, including higher education inputs, knowledge capital, and certain research outputs. However, the country ranks significantly lower in terms of research impact, particularly concerning the practical application and influence of scientific findings on policy-making and societal progress. This discrepancy suggests that while Iran produces considerable research, the findings are not effectively utilized in decision-making processes or do not lead to substantial improvements in policies.

The aim of this research is to identify the factors that either hinder or promote the effective integration of policy research into the decision-making and policy-making systems of Iran's government, specifically in the fields of science, research, and higher education. The study seeks to uncover why, despite considerable research output, the overall impact on government policies and societal challenges remains low, and to propose interventions to improve this dynamic.

Methodology

The study employs a quantitative survey method to test six hypotheses that examine various elements influencing the effectiveness of policy research. A random sample proportional to the population size of faculty members and researchers was selected from six policy research institutions related to science, research, and technology in Iran. In total, 131 participants, including researchers and faculty members of various ranks and genders, were surveyed.

The data were analyzed using a series of statistical tests, beginning with the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test to ensure sampling adequacy and sphericity. This was followed by exploratory factor analysis (EFA) with varimax rotation to identify underlying factors affecting research effectiveness. Confirmatory factor analysis (CFA) was then conducted to validate the factor structures identified. Partial least squares Structural equation modeling (SEM) was used to assess relationships between variables, and the importance-performance map analysis (IPMA) technique was applied to further analyze the significance of each factor and its impact on research effectiveness.

The SEM approach allowed for the investigation of complex, multi-layered relationships between the factors influencing research effectiveness. Specifically, the study examined how managerial and organizational interventions, interactive strategies, and researchers' personal efforts contribute to their research output and influence on policy-making. The analysis also included a multigroup analysis to identify potential differences based on gender and generational cohorts.

Findings

The research confirmed five of the six proposed hypotheses. The study found that the situation of researchers, whether they are marginalized or actively engaged in the research ecosystem, is significantly influenced by three key factors:

1. Government structure and behavior in the realm of science: This includes how the government supports or undermines scientific endeavors through policy and funding mechanisms.
2. University autonomy and academic freedom: Institutions with more independence from political and bureaucratic interference allow researchers greater freedom to pursue innovative and impactful research.
3. Decentralization and depoliticization of the higher education system: A more decentralized, less politically influenced higher education system fosters a healthier environment for policy-relevant research.

Three types of interventions were identified as crucial in determining the effectiveness of researchers:

1. Managerial and organizational interventions: These include institutional policies, leadership styles, and organizational cultures that either support or hinder research efforts. Effective management practices, combined with a supportive work environment, were found to enhance research output and impact.
2. Interactive interventions: The effectiveness of researchers is also shaped by their engagement with both their immediate academic community and broader societal networks. Those who interact extensively within scientific and societal networks were more effective in influencing policy and public discourse.
3. Personal interventions: Researchers' personal strategies, including self-motivation, communication skills, and technical expertise, play a vital role in how effectively they conduct research and contribute to policy-making.

The research also revealed important gender and generational differences. Women were found to be more likely to employ interactive and critical strategies in their research efforts, leading to higher social responsiveness and policy impact compared to their male counterparts. Additionally, younger researchers, especially those who engaged with both the academic community and a broader audience, demonstrated higher research effectiveness than older researchers who interacted primarily within academic circles. Researchers who interacted with a larger, more diverse community were seen as more effective in translating their research into policy-relevant outcomes.

One hypothesis—the idea that economic development and national cohesion impact research effectiveness—was not confirmed. It appears that these macro-level conditions, while important, do not directly influence the effectiveness of individual researchers in the policy-making process.

Conclusion

The study provides valuable insights into the factors affecting the effectiveness of policy research in Iran's higher education and governmental systems. It highlights the importance of structural changes within government and academic institutions to improve the translation of research into impactful policy decisions. Key recommendations include:

1. Strengthening university autonomy and academic freedom: Universities need greater independence from governmental control and political agendas to foster a more productive and creative research environment. This independence allows researchers to explore more innovative solutions and engage in critical policy analysis without fear of political repercussions.
2. Decentralizing and depoliticizing the higher education system: Reducing political interference in higher education can lead to more effective policy research. A depoliticized system encourages greater diversity of thought and allows for research that is more aligned with the real needs of society, rather than being shaped by political pressures.
3. Enhancing researcher engagement with broader society: Researchers who engage with a wider audience, including policymakers, the scientific community, and the general public, tend to produce more effective and impactful research. Institutions should create opportunities for researchers to collaborate across disciplines and interact with non-academic stakeholders.
4. Improving managerial and organizational structures within research institutions: Effective management practices that provide researchers with the necessary resources, support, and autonomy are essential for improving research productivity and impact. Leadership styles that encourage collaboration, innovation, and accountability can significantly enhance the quality and relevance of policy research.
5. Fostering gender and generational inclusivity: Recognizing and supporting the unique strengths of different demographic groups within the research community can improve overall research effectiveness. Tailored support for women researchers and younger generations can lead to a more diverse and dynamic research environment, contributing to more innovative and impactful research outcomes.

By implementing these recommendations, Iran's science and higher education policy-making system can become more effective in utilizing research to address national challenges and inform policy decisions. The study concludes that significant improvements can be made through structural reforms, increased researcher autonomy, and fostering a more interactive and supportive research environment. The findings provide a roadmap for enhancing the role of policy research in shaping effective science and higher education policies in Iran.

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