


Research Paper (Qualitative)

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Designing and explaining the policy framework for the development of electric vehicles in Iran

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Abstract

The purpose of this research is to design and explain the policy model for the development of electric vehicles in Iran. The research method is fundamental-applicable in terms of purpose, qualitative in terms of implementation, and fundamental-exploratory in terms of nature. The statistical population of the research includes 15 experts and policy makers in the field of automobiles in Iran, and the sampling was done in a targeted manner, and the interviews continued until theoretical saturation was reached. The data collection tool is a semi-structured interview. Data-based method was used to collect and analyze data. Data analysis and model design were done in three stages of open, central and selective coding. For data analysis, MAXQDA 2020 software was used for coding. The results show 435 primary/open codes, 40 concepts and 12 categories (economy and livelihood, transportation electrification, transnational thinking, up-to-date technology, initiative and innovation, market recognition, environmental protection, infrastructural measures, competitiveness economy and industry, risk and challenge, development-oriented governance, strategy and foresight).

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Extended Abstract

Introduction

When talking about the design of policies, both the content of the policy and the process of its formulation are considered. Despite the fact that some policies are the result of non-rational processes such as bargaining or even political exchanges, and the verb "design" cannot be attributed to them, this situation cannot be generalized to all policies, and the possibility of designing in a logical procedure with a framework cannot be ignored. It will be possible to distinguish successful from unsuccessful policies and help policy makers to design the content of more effective policies through these studies (Howlett, 2014). Many experts believe that appropriate industrial policies have many positive consequences; these policies help to eliminate market defects and promote industrial development. In addition, by intervening and correcting the allocation of non-optimal resources, they eliminate market defects. Also, these policies promote industrial development through improving economic power and enable countries to align or even surpass the economies of other countries (Liu et al, 2020). Industrial policy is an important means by which the government influences the economy and plays a vital role in economic development (Chen et al, 2020; Liu et al, 2020). It moves from renewable, sustainable and affordable energy sources such as electric mobility. Investing in new energy vehicle technology provides an opportunity to keep pace with the global automotive industry. This emerging strategic industry offers promising positive options compared to the conventional car industry; therefore, by formulating development policies in the field of electric cars, it is possible to help the country's economic development and achieve rapid and significant progress (Liu et al., 2020). Based on this, the current research is looking for an answer to this question: How is the design and explanation of the policy model for the development of electric cars in Iran?

Theoretical Framework

Sustainable Development

Sustainable development includes three main areas of economic, environmental and social development. A stable economic system is able to produce goods or services that reduce the external debt of the government and prevent imbalance between different economic sectors, and at the same time, it protects agricultural and industrial products against any damage. According to the environmental perspective, organizations and the environment must work together as a team. Organizations play an important role in exploring environmental issues and contributing to technological solutions to solve them, while the environment plays an important role in creating job opportunities and employment (Yacob et al, 2019). Social sustainability is a cultural system. A sustainable social system should be able to achieve a fair distribution of resources and equality of facilities and social services. Therefore, today governments, international organizations and support groups have made many efforts to empower human societies for sustainable business due to the scarcity of resources and environmental protection (Porvaziri et al, 2020).

Sustainable economic development

Various industries and enterprises in business face numerous challenges such as the importance of globalization, the creation of the World Trade Organization and the integration of markets around the world, rapid and fundamental technological developments, new developments in information technology, faster changes in the models of supply and demand, explanation of environmental pollution control, conservation of energy resources and lack of resources and their high cost. Industries can survive against all these challenges only when correct and timely decisions are taken. Along with all the mentioned challenges, globalization

and the expansion of consumer markets, as well as the increase in the number of competitors and the ever-increasing pressure of competition, have highlighted the importance of some concepts, including competitiveness. Therefore, companies and industries in all countries are trying to improve the quality of competition by identifying the influencing factors and promoting them (Porvaziri et al, 2020).

Strategic emerging industry

Strategic emerging industries are an important driving force for future economic and social development. Accelerating their development is an important measure to upgrade the industrial structure and speed up the change of economic development mode, and it is of great strategic importance for the modernization of countries. For example, in 2010, the State Council of China decided to accelerate the development of strategic emerging industries as an important measure to upgrade the industrial structure and speed up the change of the economic development method. After 10 years of development in China, the leading and driving role of emerging industries has become increasingly evident, representing the new fundamental factor in the construction of the modern industrial system (Helmert et al, 2020). Amelia & Harald (2021) examined the interaction between future visions and de-fossil fuel policy on Swedish roads; the results of research emphasize on the energy efficiency of electric vehicles as an important step to reduce dependence on fossil fuels through reducing overall energy demand in the transportation sector as well as electric vehicles for a clean and quiet urban environment, where replacing combustion engines with clean and quiet alternatives can have the greatest impact.

Singh et al, (2021) investigated policies, strategies and technical considerations for the development of electric vehicles in India. This study encourages policy makers, government and businesses to deploy electric vehicles in India to reduce greenhouse gas emissions. It was concluded that the Indian government should provide more research funding for the development of both electric vehicles and charging infrastructure.

Research methodology

The research method is fundamental-applicable in terms of purpose, qualitative in terms of implementation, and fundamental-exploratory in terms of nature. The statistical population of the research includes 15 experts and policy makers in the field of automobiles in Iran, and the sampling was done in a targeted manner, and the interviews continued until theoretical saturation was reached. The data collection tool is a semi-structured interview. Data-based method was used to collect and analyze data. Data analysis and model design were done in three stages of open, central and selective coding

Research findings

For data analysis, MAXQDA 2020 software was used for coding. The results show that there are 435 primary/open codes, 40 concepts, and 12 categories (economy and livelihood, transportation electrification, transnational thinking, up-to-date technology, initiative and innovation, market recognition, environmental protection, infrastructural measures, competitiveness economy and industry, risk and challenge, development-oriented governance, strategy and foresight).

Conclusion

The current research has been carried out with the aim of designing and explaining the policy model for the development of electric vehicles in Iran. The results of this research are in agreement with the results of Ghafari Fard et al, (2022), Amelia & Harald (2021), Singh et al,

(2021), Feroz Khan et al, (2020), Wang et al, (2020), Gregory Trencher (2020), and Styczynski et al, (2019). Styczynski et al, (2019) showed that despite the differences in governance institutions between countries, governments have adopted policies and used a combination of similar policies in advancing the electrification of cars.

According to the results of the research, the following suggestions are presented:

Considering the significant gap between the country's automotive industry and the global leaders of this industry, investing in technologies related to electric cars can be a window of opportunity to reduce the gap between this industry and its global competitors. This important thing requires a comprehensive study of the structure of electric cars and prioritizing the fields of production of components and parts of this product. In addition to this, the issue of partnership with world-renowned brands and joint production of this product, which can facilitate the entry of the technical knowledge and technology of these cars into the country, should also be taken into consideration.

The challenge of air pollution in big cities has become a serious matter in the field of urban policy in the country. Although the amount and share of gasoline consumption in the pollution of big cities is still subject to expert investigations, there is no doubt that most of the pollution in big cities is caused by the use of fossil fuels. Therefore, electric cars can play an effective role in reducing this pollution, especially in big cities.