

The Dynamics of Economic Interventions and Demographics on Energy Outcomes

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論 文 名 : The Dynamics of Economic Interventions and Demographics on Energy Outcomes
(エネルギーに関する経済政策及び人口統計がもたらす影響に係る研究)

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論 文 内 容 の 要 旨

As the world continues to grapple with the challenge of sustainable development and low-carbon energy transition, understanding the dynamics of economic interventions and demographics on energy outcomes has become increasingly important. Access to affordable, reliable, and sustainable energy is not only a fundamental prerequisite for human well-being and economic development, but it also plays a critical role in addressing energy poverty and mitigating the adverse effects of climate change. However, meeting the growing energy demand while addressing sustainability concerns and reducing energy poverty remains a formidable challenge, particularly in developing countries where, despite global efforts, a significant portion of the population lacks access to modern energy. Moreover, the persistence of fossil fuel usage and the staggering amount of energy subsidies pose challenges to achieving Sustainable Development Goal 7 (SDGs-7) of affordable and clean energy for all. In light of these pressing issues, this thesis sets out to investigate the complex interplay between economic interventions, demographics, and energy outcomes. Through a comprehensive analysis of global energy progress, energy poverty scenarios, and specific interventions in various contexts, this research aims to uncover insights that can inform effective policies and strategies for sustainable and equitable energy systems. The thesis consists of seven chapters that collectively provide a comprehensive understanding of the dynamics at play in shaping energy outcomes.

Chapter 1 serves as an introduction, providing a background study on economic interventions, demographics, and energy outcomes. It presents an overview of global energy progress and energy poverty scenarios, highlighting the objectives, motivation, and innovation embedded within the thesis structure.

Chapter 2 presents a detailed literature review, synthesizing existing research on the topics covered in the thesis. This review sets the foundation for the subsequent chapters, identifying gaps in current knowledge and framing the research questions.

Chapter 3 focuses on energy subsidies and energy technology innovation. It explores the notion that energy subsidies do not promote energy technology innovation, emphasizing how the gradual withdrawal of subsidies stimulates technological advancements in countries that heavily rely on energy subsidies. The finding of this chapter challenges the conventional belief that subsidies are essential for fostering energy technology advancements. Additionally, it examines the impact of energy subsidies on energy poverty and social well-being in the context of Bangladesh, revealing that energy subsidies significantly reduce energy poverty and enhance social well-being in this specific setting in Bangladesh. The provision of subsidies makes energy more affordable, thereby improving the quality of life and overall social welfare for individuals and communities facing energy poverty.

Chapter 4 investigates the role of remittances in reducing multidimensional energy poverty in Bangladesh. It demonstrates the significant positive impact of remittances on improving energy access and reducing poverty, highlighting the potential of leveraging remittance flows for sustainable development goals. This chapter suggests that the inflow of remittances can be leveraged to improve access to modern energy services, enhance energy infrastructure, and promote sustainable energy practices, thus contributing to the reduction of energy poverty.

Chapter 5 focuses on energy innovation funding, just energy transition, and social equity. It demonstrates how increased funding for energy innovation can accelerate the transition to sustainable energy systems, leading to improved social equity, particularly in advanced economies. By investing in research and development for clean energy technologies, funding initiatives have the potential to drive social equity, ensuring that the benefits of the energy transition are distributed equitably across different socio-economic groups.

Chapter 6 explores the interplay between demographic dividends, digitalization, energy intensity, and sustainable economic growth in emerging economies. It highlights how demographic dividends and digitalization can enhance energy efficiency and foster sustainable economic growth. This chapter advocates that harnessing the potential of demographic dividends and leveraging digital solutions can contribute to more efficient energy use and the adoption of renewable energy sources, fostering sustainable development.

Chapter 7 serves as the concluding chapter, summarizing the key findings from each chapter. It also highlights the overall conclusions drawn from the research, provides policy implications based on these findings, acknowledges the limitations of the study, and suggests avenues for future research.

In summary, this thesis explores the multifaceted relationship between economic interventions, demographics, and energy outcomes. An analysis of various factors such as energy subsidies, remittances, energy innovation funding, demographic dividends, and digitalization, contributes to our understanding of how these dynamics impact energy poverty, social well-being, social equity, and sustainable economic growth in different contexts. Based on the findings of this thesis, it can be concluded that economic interventions and demographics have significant impacts on energy outcomes. Energy subsidies can alleviate energy poverty and improve social well-being, but they do not necessarily stimulate energy technology innovation. Remittances can play a crucial role in reducing multidimensional energy poverty, while energy innovation funding can accelerate the just energy transition and enhance social equity. Additionally, demographic dividends and digitalization can lead to improved energy efficiency and sustainable economic growth. The findings of this thesis offer valuable insights for policymakers, providing them with evidence-based guidelines to inform decision-making and strategies aimed at achieving affordable, clean, and sustainable energy for all (SDGs-7).