Abstract of the thesis

This thesis investigates the affordability and energy efficiency aspects of the Sustainable Development Goal (SDG) 7 of the United Nations. Access to energy is a catalyst for socio-economic activities, adoption of technology and provision of public services. Sub-Saharan Africa is the epicentre of stark energy access gap and energy supply deficits globally. This denies large number of individuals and households in Africa the opportunity to use modern energy services to realize a better quality of life and economic development to reduce poverty and inequality. Despite the significance of energy to every sphere of life, affordability is one of the key barriers to the energy access in Africa largely due to very low and irregular income in Africa. Yet remittance inflows, as an important income support to Africa, have risen and exceeded official development assistance more than three times over the years. What is the effect of remittance inflows on energy poverty in Africa? Again, energy efficiency is argued to sustainably reduce energy consumption given major energy supply deficits in especially sub-Saharan Africa. This thesis hypothesizes that the energy efficiency target of SDG 7 is most likely to be achieved if positive synergies and trade-offs that exist between energy efficiency and other development outcomes or SDGs are identified, enhanced, and maximized. Thus, this thesis also investigates the nexus between the energy efficiency and development outcomes in Africa. An unbalanced panel dataset on 51 African countries from 1991-2017 is analyzed using Stochastic frontier analysis (SFA), Generalized method of moments (GMM), and Dynamic common correlated effect (DCCE) estimators with several robustness checks. The results show that although energy efficiency levels are very low in Africa, energy efficiency shares positive synergies with economic growth and lower unemployment, enhanced by high human capital development and a fairer distribution of income. In addition, remittances can largely reduce energy poverty in Africa. The policy implications of these findings are provided.