Chapter 20
Sustainable Development and Ecological Footprint in Türkiye

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ABSTRACT

The ecological footprint serves as a devised methodology aimed at quantifying the impact of human endeavors on ecosystems. Sustainability, in this context, entails the augmentation of biologically productive areas, fortification of their capacity for self-regeneration, and preservation thereof. The ecological footprint framework emerges as a numerical tool pivotal for fostering the sustainable utilization of resources. The principal objective of this research is to identify the determinants contributing to the ecological footprint within the framework of sustainable development, focusing on selected indicators for Türkiye, namely Ecological Footprint per Capita, CO2 Emissions per Capita, GDP per Capita, Energy Consumption per Capita. The chapter aims to explore the interrelationships among these variables through cointegration and causality analyses.

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1. INTRODUCTION

The increase in the world population, rapid changes in industry and technology, international competition, deforestation, agricultural development, urbanization, unlimited and unconscious consumption mentality cause the rapid destruction of nature by human hands. As a result of this destruction, a wide range of environmental problems arise, such as a decrease in biological diversity, global warming, acid rain, water, soil and air pollution, unplanned urbanization and depletion of natural resources. Ecological footprint is a method developed to measure the impact of human activities on ecosystems. All products produced as a result of people's physiological, economic and social activities constitute the ecological footprint.

Ecological footprint, used as an indicator of sustainability, carries the idea of leaving a protected environment to the next generations. Sustainability envisages increasing biologically existing productive areas, their ability to renew themselves and the maintenance of their renewal capacity. In order to sustain vital activities, individuals must organize their economic activities, especially their living conditions, by taking into account the biological carrying capacity of the earth.

The ecological footprint indicator is a numerical method used to ensure sustainable use of resources. This method represents a whole of ecological economics and sustainability concepts, which state that ecological resources have economic values. Calculating the ecological footprint is of great importance in terms of creating ecological awareness and developing ecological awareness. Institutions that reduce their ecological footprint can contribute to a sustainable movement.

The concept of ecological footprint; It was defined by Wackernagel and Rees to estimate the ecological area covered by the human race on a local, regional and global scale. The ecological footprint is compared with the total productive area in terms of living diversity and reveals whether the area in question continues its vital activities within its own borders. If the footprint as a result of the calculation is greater than the total productive area in terms of living diversity, it means that the economy of this area consumes more forests, cultivated land and other resources than it can handle, and this area produces waste above its digestion capacity.

An economy's or population's critical need for natural capital relative to biologically productive areas is represented by its ecological footprint. Ecological footprint is determined depending on population size, material living standards, technology used and ecological productivity (Mızık and Avdan, 2020: 457).

The work of the World Commission on Environment and Development, established by the United Nations, indicates that solutions to environmental problems are possible by adopting and implementing the principle of sustainable development. The report titled Our Common Future, prepared by the Commission, aims to disseminate the understanding of sustainability throughout the world. Sustainable